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NOTICES—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Overseas Chemical Trade

THE Board of Trade returns for January confirm the improvement in chemical overseas trade noted in the past few months. The imports of chemicals, drugs, dyes, and colours for the past month were £125,403 less than in January of 1927, while the exports were £441,296 more. The most striking item in imports is the decline in coal tar products from £194,460 to £40,565. The increase in exports is fairly general. The sulphate of ammonia export market continues to expand, the total value of the exports for the past month being £286,438, as compared with £97,193 a year ago. Spain and the Canaries, generally a strong market, bought less than usual, but Japanese purchases rose from £5,978 to £88,085, while Dutch East Indies, which took nothing from us in January, 1927, imported sulphate to the value of £115,021 last month. It may be noted that France, as a purchaser, has now entirely disappeared from the returns. Coal tar product exports, again, rose from £103,136 to £256,079, the increases being mainly in carbolic acid and tar and creosote oils, etc. Exports of dyestuffs and painters' colours are slightly down, but there is a substantial improvement in sodium compounds, and a slighter improvement in drugs and medicines. The general impression left by the January returns is that of steady all-round recovery.

Another Nitrogen Conference

THE important international nitrogen conference held at Biarritz in 1926 is, we understand, to be followed by another in the coming spring, which will have one novel feature—it will be held on board ship during a week's cruise starting from Venice on April 30. The fertiliser interests of Great Britain, Germany, France, Italy, and Norway will be represented respectively by Nitram, Ltd. (London), Stickstoff-Syndikat, G.m.b.H. (Berlin), Comptoir Francais de l'Azote (Paris), Montecatini Societa Generale (Milan), and Norsk Hydro-Elektrisk Kvaestofaktieselskab (Oslo). The scope and objects of the Adriatic meeting will be similar to those of the Biarritz conference; namely, to put on record the knowledge gained in the interval in regard to fertilisers in their relation to agriculture and to afford opportunity of discussion to those present. As at Biarritz, the papers and discussions will be confined to subjects of scientific or statistical interest bearing mainly on propaganda. Questions relating to fixing of prices and methods of distribution will, we are definitely informed, not be dealt with.

Invitations to attend the conference are being issued to persons in the countries chiefly concerned in the production and consumption of nitrogen fertilisers. For the purpose of this meeting the organisers have chartered the North German Lloyd steamer *Luetzow* of about 9,000 tons. She will be ready at Venice on Monday, April 30, 1928, and it is proposed to proceed direct to Corfu and to stop at Ragusa, Spalato, Sebenico, and Brioni on the return journey to Venice, which will be reached about mid-day on Tuesday, May 8.

National Research

A PERUSAL of the report of the Committee of the Privy Council for Scientific and Industrial Research, just issued, shows what an astonishing variety of problems arise for investigation when once a body competent to deal with them comes into existence. The Department of Scientific and Industrial Research has a large amount of solid achievement to its credit. Not the least of its successes, however, is the manner in which it has co-ordinated scientific work in this country. As a result, every problem which arises can be tackled at once from various aspects—physical, chemical, biological, etc.—which it shows; while at the same time every new discovery made, and every new method developed, can be at once applied in fields of science apparently remote from the original one.

A most interesting passage in this report deals with the question of research in chemotherapy. It is frankly recognised that in this region of research we have not hitherto taken our full part, and it has now been decided that a permanent committee of chemists and biologists shall be set up to develop and co-ordinate research, while a separate clinical committee

will deal with the necessary trials of any substance of sufficient interest. This is a development of the very highest importance, and results of far-reaching character may be expected to flow from it. The existence of an official clinical committee, which will be in a position to make authoritative pronouncements on the therapeutical value of substances, is in itself very significant. In the absence of a separate report on the activities of the Chemical Research Laboratory at Teddington, the notes on the subject in the volume now under discussion will be read with great interest. High-pressure research, with special reference to the synthesis of organic compounds, is now under way; among other things, the production of synthetic methyl alcohol is being investigated, and in this regard the advisory council allows a note of romance to creep into the cold voice of science: "The first batch [of synthetic methyl alcohol] was produced at the Chemical Research Laboratory, Teddington, on July 28, 1926." The examination of the products of the low-temperature carbonisation of coal (phenols are especially mentioned) is proceeding, and at the instigation of the Dyestuffs Development Committee of the Board of Trade, fluorene, acenaphthene and perylene and their derivatives are being studied. Dyestuffs derived from 2:7-diaminofluorene have already been produced, and are undergoing tests. Not the least of the virtues of this fascinating report is the clear and readable style in which it is written.

Are Patent Sales Taxable?

THE attention of holders of patents and all interested in patent law and practice may be directed to an important decision of the House of Lords on Tuesday in an action by the Inland Revenue authorities against the Rees Roturbo Development Syndicate, Ltd. The question, stated briefly, was whether for the purposes of the taxation of profits of trade or business a sum received by the respondents for the disposal of certain foreign patent rights was to be treated as a receipt of trade or business, and consequently taxed, or was to be treated as a realisation of a capital asset and consequently not liable to tax. The sum in dispute was one of £15,898 paid by the Manistree Ironworks Co. in respect of patent rights in America. Mr. Justice Rowlatt, in the King's Bench Division, supported the Commissioners' view that the profits on the sale of the patent rights arose in the course of the company's business and were chargeable to income tax and excess profits duty. The Court of Appeal, by a majority, reversed this decision. The House of Lords, on Tuesday, confirmed the original judgment of Mr. Justice Rowlatt that the transaction was liable to tax. Lord Buckmaster, in delivering judgment, pointed out that the respondent company was formed in 1906 for the general purpose of purchasing and acquiring patents and for the special purpose of acquiring particular patent rights from Mr. Rees, the inventor. It was one of the purposes of the company to improve, manage, develop, and sell or otherwise deal with any part of the property and rights of the company. It would, therefore, appear that trafficking in patents is a taxable industry, but whether this judgment would apply to a simple sale of a patent by the inventor is not so clear.

Books Received

CHEMICAL AFFINITY. By L. J. Hudleston. London: Longmans, Green and Co., Ltd. Pp. 136. 7s. 6d.

THE STRUCTURE AND PROPERTIES OF MATTER (Benn's Sixpenny Library. No. 143). By Dr. W. A. Caspary. London: Ernest Benn, Ltd. Pp. 77. 6d.

AVICENNAE DE CONGELATIONE ET CONGLOTTINATIONE LAPIDUM. Being sections of the Kitâb Al-Shifâ, Latin and Arabic Texts with an English Translation. Edited by E. J. Holmyard and D. C. Mandeville. Paris: Paul Geuthner.

THE MECHANISM OF HOMOGENEOUS ORGANIC REACTIONS FROM THE PHYSICAL-CHEMICAL STANDPOINT. By Francis Owen Rice. New York: Chemical Catalog Co., Inc. Pp. 217. \$5.00.

THE MANUFACTURE OF ARTIFICIAL SILK. By E. Wheeler. London: Chapman and Hall. Pp. 150. 12s. 6d.

A TEXTBOOK OF ELEMENTARY QUALITATIVE ANALYSIS. By Carl J. Engelder. London: Chapman and Hall. New York: John Wiley and Sons, Inc. Pp. 212. 11s.

BRITAIN'S INDUSTRIAL FUTURE. The Report of the Liberal Industrial Inquiry. London: Ernest Benn, Ltd. Pp. 503. 2s. 6d.

PROTECTIVE METALLIC COATINGS. By Henry S. Rawdon. New York: Chemical Catalog Co., Inc. Pp. 276. \$5.50.

STANDARDS AND TESTS FOR REAGENT AND C.P. CHEMICALS. By Benjamin L. Murray. London: Constable and Co., Ltd. Pp. 560. 25s.

HERMES, OR THE FUTURE OF CHEMISTRY. By T. W. Jones. London: Kegan Paul, Trench, Trubner and Co., Ltd. Pp. 87. 2s. 6d.

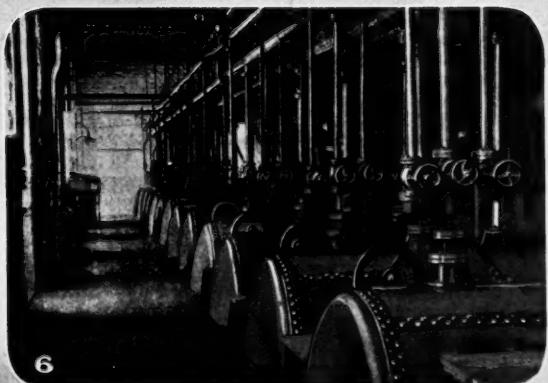
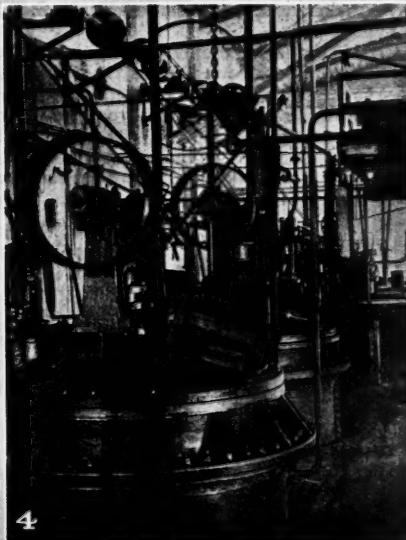
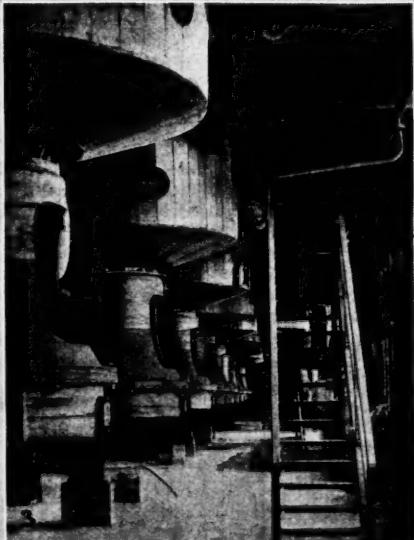
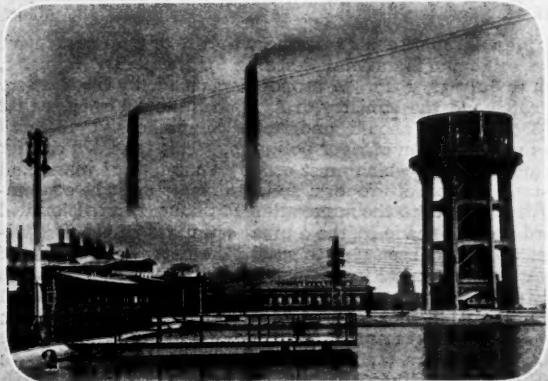
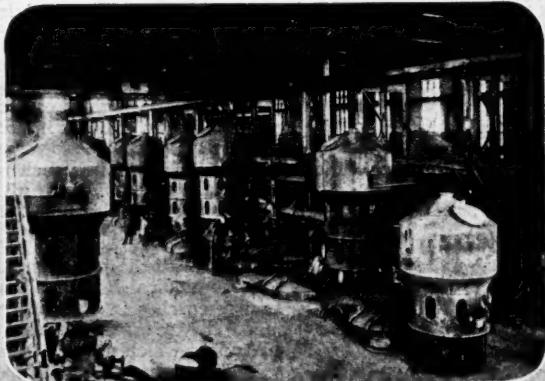
OILS, FATS AND FATTY FOODS. By F. Richards Bolton. London: J. and A. Churchill. Pp. 416. 30s.

PITMAN'S DICTIONARY OF INDUSTRIAL ADMINISTRATION. Edited by John Lee. To be completed in about 30 fortnightly parts. London: Sir Isaac Pitman and Sons, Ltd. 1s. 3d.

The Calendar

Feb.	20	Chemical Industry Club: "Mental Deficiency." Dr. F. C. Shrubsall.	2. Whitehall Court London.
	20	Institute of Chemistry and Society of Chemical Industry (Yorkshire Sections): "The Phenomenon of Wetting and Its Industrial Significance." Dr. F. L. Usher.	
20,	27	Royal Society of Arts: "Fatigue Phenomena, with special reference to Single Crystals." H. Gough.	John Street, Adelphi, London.
21-	24	Carbonisation Conference. Arranged by Society of Chemical Industry, Institution of Gas Engineers, Coke Oven Managers' Association, and the Institute of Fuel.	Midland Institute, Birmingham.
22		Society of Chemical Industry (Nottingham Section): "Laboratory Methods in Industry: The Manufacture of Unstable Chemicals." F. H. Carr. 7.30 p.m.	University College, Nottingham.
22		Society of Chemical Industry and Institute of Chemistry (Glasgow Section): "Some Aspects of Toxicology." John W. Hawley. 7 p.m.	39. Elmbank Crescent, Glasgow.
23		Chemical Society: "Spectra and Atoms." Professor A. Fowler.	Burlington House, Piccadilly, London.
24		Society of Chemical Industry and Institute of Chemistry (South Wales Sections): "The Electronic Theory of Chemical Combination." N. H. Hartshorne. 7.30 p.m.	Thomas's Café, High Street, Swansea.
24		West Cumberland Society of Chemists and Engineers: "Production and Modern Application of Dissolved Acetylene." W. C. Freeman. 7 p.m.	Workington.
Mar.	7	Scientific Societies of Huddersfield: Second Annual Joint Dinner.	Huddersfield.
7	8	Institute of Metals: Annual General Meeting.	Institution of Mechanical Engineers, Imperial College of Science, London.
8		Optical Society: Annual General Meeting.	New Prince's Restaurant, London, S.W.1.
8	9	Institution of Chemical Engineers: Conference, Sixth Annual Meeting and Annual Dinner.	
9		Institution of Chemical Engineers: Annual Corporate Meeting.	
16		Society of Chemical Industry (Liverpool Section): Annual Meeting.	Liverpool.

Post-war Industry: Modern Installations in Poland



1. MANUFACTURE OF AMMONIA FROM CALCIUM CYANAMIDE AT CHORZOW. 2. WATER TOWER AND COOLING TANKS FOR NITROGEN COMPOUNDS. 3. AMMONIA PLANT. 4. DYESTUFF INTERMEDIATES PLANT AT LODZ. 5. WARSAW DRUG FACTORY. 6. COAL TAR DISTILLATION PLANT.

Report on Scientific and Industrial Research

Activities of the Department in 1926-27

The Report of the Committee of the Privy Council for Scientific and Industrial Research, 1926-27, has just been published (H.M. Stationery Office, pp. 157, 3s.). The parts of the report which deal with matters of chemical interest are noted below.

THE present report deals with the activities of the Department of Scientific and Industrial Research for the period August 1, 1926, to July 31, 1927. A proposal was made by the Ministry of Health and the Ministry of Agriculture and Fisheries that the Department should undertake comprehensive research into the prevention of river pollution. This task will call for continuous study which must occupy a number of years, and substantial expenditure for a period of years must be contemplated. Subject to the approval of Parliament, provision will accordingly be made in the annual estimates of the Department, which has been able to secure the part-time services of Dr. Calvert, chemical inspector in the Ministry of Health, to initiate the work as the first Director of Water Pollution Research. The following board has been appointed to prepare a programme of research on the disposal of effluents and the pollution of rivers, and to supervise its scientific conduct: Sir Robert Robertson, F.R.S. (chairman), Professor V. H. Blackman, F.R.S., Dr. G. C. Bourne, F.R.S., Professor F. G. Donnan, F.R.S., Sir Alexander Houston, and Mr. H. C. Whitehead, A.M.Inst.C.E.

One of the most injurious trade effluents, the investigation of which is already receiving the attention of the Board, is produced by the beet sugar industry. Although this industry has been successfully practised abroad for many years no economic method of satisfactorily purifying its effluents has been evolved. The Board has already made arrangements for investigating, during the 1927-28 manufacturing season, the possibilities of biological treatment of the various types of waste water produced by the industry. Facilities for the work have been afforded at one of the factories, and a substantial contribution towards the cost is being made by the industry.

Patents and Licences

The Department has filed seven applications for British patents during the year, and ten British and foreign patents have been abandoned or allowed to lapse. The subject matter of the applications relates to thermometers, penetrometers, heating devices, measuring instruments, germicides and medicinal products. Licences have been granted in connection with the patent covering non-corrosive flooring, the colouring of aluminium and its protection from corrosion. Arrangements have also been made for the exploitation, under licence, of the patent for sound-absorbing plaster and of the patent covering the vulcanite substitute developed by the dental investigation committee.

Maintenance Allowance to Students

Attention was drawn in the report for 1925-26 to the large number of grants given to students of chemistry, and the advisory council of the Department stated that too many men were encouraged to specialise in this subject. It is, however, found that one-third of the students of chemistry who received grants from the Department are now employed in research in industry, and another third in research in Government laboratories and universities. These results are satisfactory in two ways; they give welcome evidence of the steady expansion of chemical research in industry, and they show that the demand for first-class students of chemistry does not fall short of the supply. It is rather the chemists who fail to reach the highest university standard for whom there is little demand.

The situation disclosed by this statistical inquiry is regarded as satisfactory; the allowances have clearly fulfilled the purpose for which they were originally instituted—namely, that of supplying fully-trained men to meet the special needs of the years immediately after the war.

Grants to Research Workers

These grants fall into quite a different category from the maintenance grants to students; their main object is not to produce scientists, but scientific results. The award of such grants should be regarded, within limits, as a permanent function of the Department. The advisory council has recently recommended a grant of approximately £1,500 a year for three years to enable the Imperial College of Science

to appoint research assistants to Professor Bone for work on chemical reactions at high pressures. Imperial Chemical Industries, Ltd., are supplying the College with the expensive equipment necessary. The use of very high pressures in chemical manufacture is rapidly extending, and it is important to encourage at least one University centre to organise scientific research in directions which promise such great industrial advances. Work of this type is not without danger, and requires the supervision of a highly skilled staff.

Chemotherapy Committee to be Set Up

During the year a report was made of the joint committee set up by the Department and the Medical Research Council to explore the field of general researches in chemotherapy. The committee explored the possibility of organising investigations for the discovery of substances which may have either specific action on infecting organisms, or no chemotherapeutic action in this sense, but activity of potential value in the treatment of symptoms. There is no doubt that this subject has been neglected very much in this country by comparison with Germany, and there is equally no doubt that in our present state of knowledge it offers a most important field for the closest co-operation of research chemists, biologists and physiologists. The co-operation, too, must extend to cover work being carried out by industry, and the committee have given very great consideration to this aspect of the question, and have been greatly assisted by the views of the chemical industry in this country, which they have been able to obtain through the Association of British Chemical Manufacturers.

The inquiry committee recommended that a permanent committee of chemists and biologists should be set up to develop and co-ordinate the chemical and biological research now in progress in various parts of the country and to co-operate with the industry. They further recommended that a separate clinical committee should be set up to organise and direct the necessary clinical trials of any substance of possible importance in medicine.

The advisory council is of the opinion that both committees should derive from the Medical Research Council; but in view of the general importance of the work, and of the special importance to the organic chemical industry, it is recommended that the Department should nominate the chemical members of the committee, and should provide the sum required for the chemical investigations, which is estimated at £2,000 a year at the outset.

The Work of the Research Associations

In notes on the research associations, it is stated that the Department will contribute to the Leather Manufacturers' Research Association, for a further period of five years, a grant equivalent to half the annual subscriptions received from the industry. The British Photographic Research Association, in view of its special circumstances, is to receive a grant of £2,000 a year for five years, provided that the subscribing firms contribute at least £3,000 a year, and that the work is supervised by a committee of five experts, of whom two are to be appointed by the Department. The Research Association of British Motor and Allied Manufacturers, states the report, continues to receive little support from the now prosperous motor industry.

Chemical Research

The extension of the Chemical Research Laboratory at Teddington referred to in last year's annual report is nearly completed, and when ready for occupation will provide much-needed room for the programme of work, including that for the Chemistry Co-ordinating Research Board, being carried out. During the period under review attention has been concentrated on the major constituents of low-temperature tar supplied by the Fuel Research Station.

The possible utilisation of the phenols from low-temperature tars has been examined in two directions: (1) as "anti-knocks" in petrol for internal-combustion engines; and (2) as germicides and disinfectants. A certain measure of success has been observed in both of these investigations.

Complex Constituents of Coal Tar

During the past year work has been proceeding on fluorene, acenaphthene and perylene, in accordance with a recommendation received from the Dyestuffs Development Committee of the Board of Trade that fundamental work should be undertaken on certain hydrocarbons. As regards fluorene, two dyestuffs having 2:7-diaminofluorene as intermediate have been submitted to the Dyestuffs Development Committee and have been tested for dyeing properties by the British Dyestuffs Corporation, to whom a sample of the intermediate has also been sent.

The nitration of acenaphthene is being studied under various conditions with a view to preparing the three possible mononitro-derivatives and the corresponding amines. Investigations are also being conducted on the oxidation of acenaphthene and its derivatives to the corresponding quinones.

Perylene has not actually been found in coal tar, but can be easily synthesised from coal-tar products. A sample of perylene melting at 273-274° C. has been prepared by purification as the picrate. Investigations on the preparation of perylene derivatives are in progress.

High-Pressure Research

The Chemical Research Laboratory is now equipped with large-scale apparatus for researches on high-pressure gas reactions with special reference to the synthesis of organic compounds. Much experience has been gained during the year by investigating the production of synthetic methyl alcohol, the first batch of which was produced at the Chemical Research Laboratory, Teddington, on July 28, 1926. Catalysts of various compositions are being tested in order to select the best method of preparation and composition. The product, using a suitable catalyst, is mainly methyl alcohol; a small fraction of other material is being examined. Experiments on the production of higher alcohols from carbon monoxide and hydrogen have been carried out. Exploratory investigations are being made on the synthesis of hydrocarbons from carbon monoxide and hydrogen at atmospheric pressure. The initial trials have proved promising.

Corrosion of Metals

As explained in previous reports, the object of the work on which Dr. Bengough and his assistants have been engaged under the Corrosion of Metals Research Committee was, in the first place, to develop accurate quantitative methods. The scope of the work of the committee has been extended during the year to include consideration of the atmospheric corrosion of metals. Fundamental investigations on this subject have been in progress during the past few years under the British Non-Ferrous Metals Research Association. Recently, however, the Association felt obliged to discontinue this work. The position was considered by the Corrosion of Metals Research Committee, and, having regard to the importance of the researches from the point of view of the general study of the corrosion of metals, for which the committee was set up, a recommendation was made that arrangements should be made by the Department for their continuance. The investigator employed by the Association has accordingly been appointed to carry out further work on the same general lines under the Department.

Other investigations have dealt with minor metals, chemotherapy, the extraction of helium from monazite sand, synthetic resins, the production of formaldehyde, etc.

Beryllium

The Engineering Co-ordinating Research Board and the National Physical Laboratory have continued the investigation of beryllium, with the object of producing a purer metal of greater ductility than that obtained from the cathode metal. The experimental difficulties have proved considerable, but the progress made is not discouraging. A preliminary survey of the constitution of beryllium-aluminium alloys has been made.

Fuel Research

Reference is made in the report to the arrangement made with the Gas Light and Coke Co., whereby a subsidiary company of the latter will erect a bank of retorts developed at the Fuel Research Station for low-temperature carbonisation of coal. The bank will be capable of producing about 100 tons of smokeless fuel per day. The work of the Fuel Research Board for 1926 has already been discussed in a

separate report. Work is being continued on the physical and chemical survey of the national coal resources; high- and low-temperature carbonisation; bricqueting (in part of which the Tar Distillers' Association is co-operating); coal purification; and the hydrogenation of coal. Work has continued on the hydrogenation of coal by the Bergius process, both at the Fuel Research Station and in Germany, in collaboration with the British Bergius Syndicate and the International Bergius Co. A continuously working plant, with a capacity of about one ton of coal per day, has been erected at the Fuel Research Station, and interesting results have been obtained.

A New Laundry Process**Interesting Paper by Messrs. Alliott and Hatfield**

At Burlington House, London, on Friday, February 10, a joint meeting of the Chemical Engineering group of the Society of Chemical Industry and the Society of Dyers and Colourists was held, at which Messrs. E. A. Alliott and A. E. Hatfield read a paper entitled "Dry Cleaning Machinery, with Some Notes on a New Laundry Process." This paper was complementary to the one read recently by the same authors (see *THE CHEMICAL AGE*, February 4, p. 99).

The authors stated that in attacking the question of dry cleaning they set before themselves not merely a high output and great economy in labour and materials, but also a very high standard in the finished product, and, as a result of several years of joint work, this had been obtained, and was now in successful operation on a very large commercial scale. In this country there were two units working, each one of which was capable of handling 2,000-2,500 suits per day, and installations were in hand for Canada and America which were capable of handling jointly 15 to 20 tons of clothing daily.

Description of the New Process

The basis of the process was the circulation through the washing machine of almost unlimited quantities of solvent soap solution, containing a special detergent which was not only adapted to filter freely, but was also very helpful in the cleaning process itself. In fact, it was such that it might be regarded as soap during the cleaning part of the process, and a reagent so far as the treatment of the solvent itself was concerned. The bath in the washing machine was changed every two or three minutes; labour was cut down very extensively, thus the output per man when their system was adopted was increased about fourfold, the output per h.p. was about doubled, and the productivity of the floor space was multiplied by a factor of approximately four; the soap was cut down to $\frac{1}{10}$; the spirit was cut down very substantially, and the treatment of the spirit apart from the process itself was confined to an occasional distillation.

This continuous process could be applied to any make of washer, including ordinary open washers. The fullest benefit, however, appeared when it was applied to the vacuum washing system, which was the ideal towards which the best dry-cleaning practice must necessarily tend.

The paper was illustrated by lantern slides and a cinematograph film.

The Question of Filtration

In the discussion, Professor J. W. Hinchley said he had identified himself to some extent with the use of filtration in dry cleaning by adapting the stream-line filter to it. With regard to the use of the stream-line filter in such processes, this worked industrially in exactly the same way as the filter adopted by Mr. Alliott, except that there was no need for the filter aid. The results with regard to spirit were exactly the same, and it seemed curious that Mr. Alliott had not mentioned the stream-line filter. The only inference was that the stream-line filter had not come under Mr. Alliott's notice in regard to these processes.

Mr. Alliott, replying to Professor Hinchley, said that as regards the particular type of filter adopted in the process, he had investigated various types of filter very carefully and adopted the Sweetland filter-press because it appeared to be the most suitable and gave the least trouble in practice. He would be always interested in investigating anything which would change his opinion on that point, because he was open to conviction, but at the moment he was a long way from being convinced that the Sweetland filter-press was not the best for the process.

Chemical Exhibits at the British Industries Fair

A Guide to Stands at the White City

THE largest exhibition in Great Britain, and one of the largest in the world, the British Industries Fair, opens on Monday at the White City, Shepherd's Bush, London, and Castle Bromwich, Birmingham, and will continue until Friday, March 2. There will be no opening ceremony, in order that business may commence straight away. The chemical, dyestuffs, intermediates and drugs section is as usual in London, and the paint and varnish section, with the heavy engineering plant, is at Birmingham. There will, however, be an important difference this year in that the chemical section will not be housed, as hitherto, in Hall A, at the Uxbridge Road entrance, but will be near the Wood Green entrance, in Hall K. It is worth noting that the recent signs of recovery in Britain's chemical industry shown in the Board of Trade returns are reflected in the larger number of exhibitors this year. The amount of space booked is one hundred per cent. greater than last year, and the number of exhibitors has increased in about the same proportion.

Some New Products

As is fitting at so important a fair, a number of new products are being shown, chiefly in the dyestuffs and pharmaceutical directions. For instance, one firm of dyestuffs makers is exhibiting a new series of vat colours which yield blacks and greys of sufficient fastness without having to develop the shade by a supplementary process. Other dyes include a new product, suitable for dyeing wool or leather, which are of an intermediate nature between chrome and vat colours.

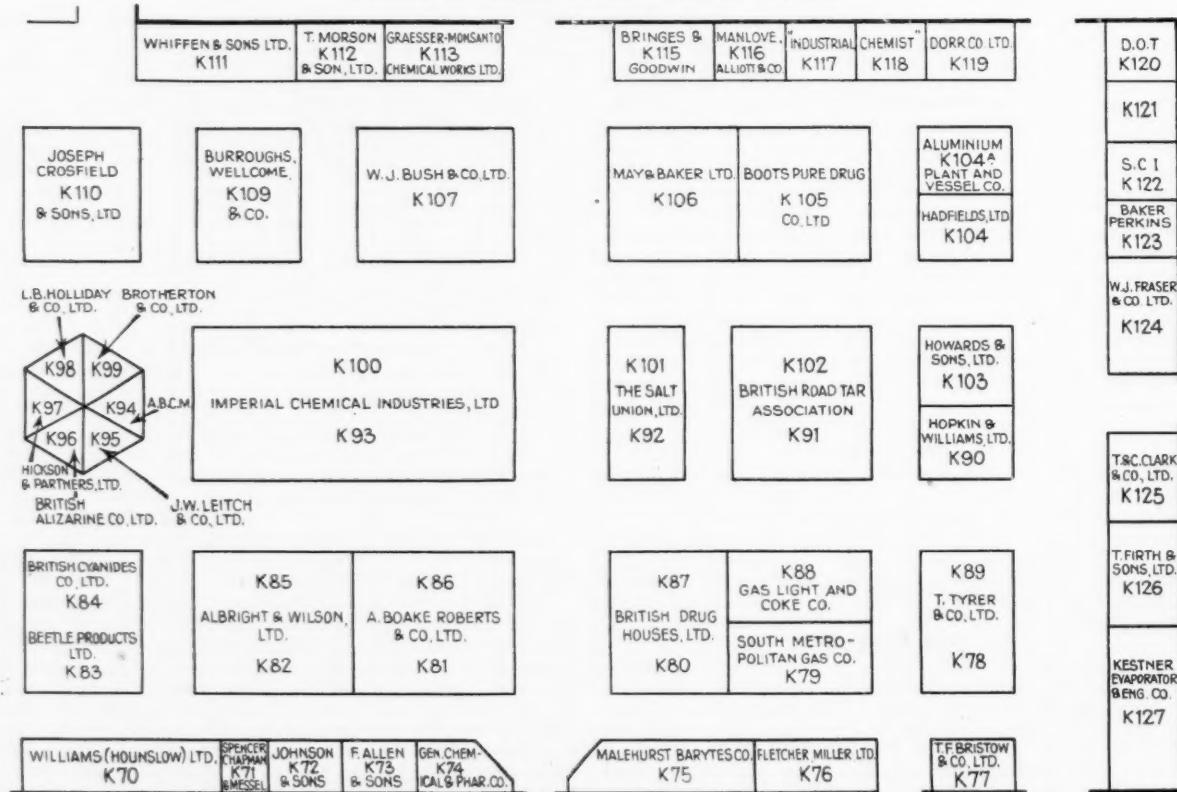
Diacetone alcohol practically free from acetone, pure cinnamic acid, and musk xylol, 100 per cent., are particularly featured by another firm; and a big producer of artificial silk is showing various applications of a special type of moulding powders. In the drugs and pharmaceuticals several lines that had only just been put on a commercial scale at the time of the last Fair are now being produced on a larger scale,

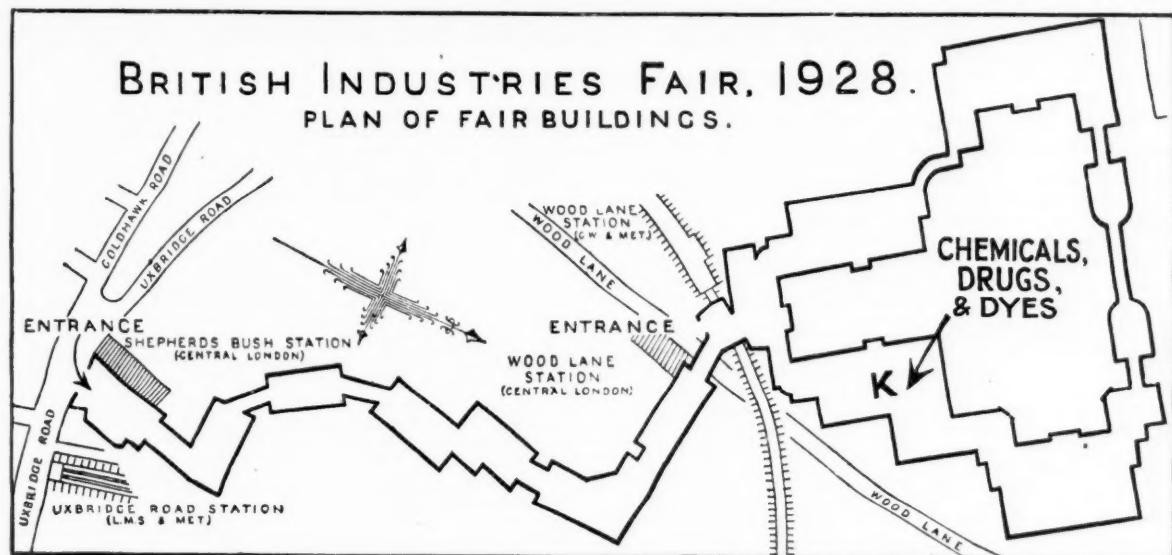
the notable examples being vitamin D, in the form of irradiated ergosterol, and synthetic thyroxine. An arsenical product which is claimed to be of greater stability than 606, and similar products, is produced by another firm.

Following is a list of exhibitors of heavy, fine and pharmaceutical chemicals and dyestuffs:—

Albright and Wilson, Ltd., Oldbury; Acme Chemical Co., Tonbridge; Angelo Brothers; F. Allen and Sons; A. Boake Roberts and Co.; Boots Pure Drug Co.; British Alkaloids, Ltd.; British Drug Houses; Burroughs, Wellcome and Co.; W. J. Bush and Co.; British Alizarine Co.; Brotherton and Co.; British Road Tar Association; T. F. Bristow and Co.; Chiswick Chemical Works; Joseph Crosfield and Sons, Warrington; Carr and Son, London; Day and Martin; Fletcher, Miller, Ltd., Manchester; General Chemical and Pharmaceutical Co.; Gas Light and Coke Co., London; Graesser-Monsanto Chemical Works, Ruabon; Gem Dry Plate Co.; Hopkin and Williams; Hickson and Partners, Ltd., Castleford; L. B. Holliday and Co., Huddersfield; Howards and Sons, Ilford; Haller Laboratories, Ltd.; Houghton-Butcher (Great Britain), Ltd.; Imperial Chemical Industries; Ilford, Ltd.; Johnson and Sons; Johnson, Matthey and Co.; John Knight, Ltd.; J. W. Leitch and Co., Huddersfield; May and Baker; Malehurst Barytes Co.; Thomas Morson and Co.; New Brunswick Blacking and Stain Co.; Robert W. Phillips, Ltd.; Rapoloid, London; The Salt Union, Liverpool; South Metropolitan Gas Co.; Spencer Chapman and Messel; Thomas Tyre and Co.; Whiffen and Sons; Williams (Hounslow), Ltd. The following are numbered among the firms showing chemical plant:—Aluminium Plant and Vessel Co.; S. Watt Arnall and Co.; T. and C. Clark and Co., Wolverhampton; The Dorr Co.; W. J. Fraser and Co., Dagenham; Hadfields, Ltd., Sheffield; Johnson Matthey and Co.; Kestner Evaporator and Engineering Co.; Manlove Alliott and Co.; Baker, Perkins, Ltd.,

Position of Stands in the Chemical Section





GENERAL PLAN OF THE FAIR BUILDINGS.

Peterborough; Bringes and Goodwin; T. Firth and Sons. The large machinery, heavy plant, and power plant are being shown at Birmingham. Manufacturers of synthetic resins and ebonite include Birkbys, Ltd., Liversedge; British Ebonite Co.; British Cyanides Co.; Beetle Products Co., Oldbury; Damard Lacquer Co. (in association with Bakelite, Ltd. and Mouldensite, Ltd.); Indurite, Ltd.; Spauldings, Ltd.; Trelleborg Ebonite Works, Ltd. The *CHEMICAL AGE* will be exhibiting at Stands A21 and 32, Uxbridge Road entrance, where an expert staff will be in attendance.

Calcium Biphosphate Inquiry

Hearing Continued

The complaint that calcium biphosphate of baking powder quality had been improperly excluded from the list of articles chargeable with duty under Part I of the Safeguarding of Industries Act was further investigated at the offices of the Board of Trade in London on Wednesday. The whole of the sitting in the morning was held in camera. The public sitting was resumed in the afternoon.

In the course of his evidence, Mr. Ernest Lewis, for the past eleven years technical adviser to Albright and Wilson, put in some lists of fine chemicals, taken from the Board of Trade List under the Act, to prove the fact that such fine chemicals, though used in industry, are not pure. Objection was taken by both opposing counsel on the ground that witness could not know of his own knowledge that all these chemicals as sold on the market were in a condition of impurity. Mr. Lewis named a few which he said he had himself analysed and added that it was a matter of common knowledge among chemists that all those in the list contained impurities.

The chairman asked Mr. Lewis if he would suggest that there should be a limit of 10 per cent. calcium sulphate in the imported material. Mr. Lewis said he wished some high figure to be imposed, if the application was successful. With 10 per cent. he was certain no miller in this country would buy it, and the point was that if a figure of, say, 2 per cent. was imposed, it would mean that a calcium biphosphate containing a little over that quantity would be imported and so evade the tax, and then it would be diluted sufficiently here afterwards to meet the demands of the millers. If 10 per cent. was insisted on in the imported substance it would be quite impossible to dilute it down to 2 per cent.

The proceedings should have been continued on Thursday morning, but when the parties assembled it was learned that the chairman (Mr. A. A. Hudson, K.C.), was unable to attend through illness. After some discussion, the proceedings were adjourned indefinitely.

Dyestuff Production in 1926

Development Committee's Report

THE Board of Trade have received from the Dyestuffs Industry Development Committee the following statement showing the quantities of the various main classes of dyes which were produced in the United Kingdom during the year 1926. The statement has been prepared by the Committee from returns furnished voluntarily by the principal British dye makers, and, though it is not comprehensive, the combined output of the few firms which did not make returns was relatively negligible. The figures in all classes represent the production in market types.

Category.	Blacks.	Blues.	Browns.	Greens.	Oranges.
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
Direct Cotton Colours	1,521,610	781,727	293,606	153,100	213,365
Acid Wool Colours	1,177,915	1,005,566	81,825	438,542	491,800
Chrome and Mordant Colours (including Alizarine)	1,183,125	530,331	707,303	51,981	468,338
Basic Colours	2,662	235,476	91,358	120,939	55,358
Sulphur Colours	3,608,761	277,703	530,957	139,722	8,007
Vat Colours (including Indigo)	168,826	5,272,016	8,664	115,951	58,294
Dyestuffs for Lake Making	13,870	35,420	4,109	88,725	7,913
Oil, Spirit and Wax Colours and Miscellaneous	401,106	218,756	48,624	—	24,506
Aggregate Total	8,077,905	8,357,085	1,706,446	1,138,963	1,327,581

Category.	Reds.	Violets.	Yellows.	Total.
	Lbs.	Lbs.	Lbs.	Lbs.
Direct Cotton Colours	544,242	86,304	586,524	4,180,508
Acid Wool Colours	1,115,910	266,021	639,680	5,217,259
Chrome and Mordant Colours (including Alizarine)	3,605,448	52,711	312,872	6,972,112
Basic Colours	315,315	274,031	183,674	1,308,813
Sulphur Colours	27,300	1,100	13,320	4,636,930
Vat Colours (including Indigo)	142,286	193,805	197,831	6,237,303
Dyestuffs for Lake Making	733,301	19,382	45,153	917,933
Oil, Spirit and Wax Colours and Miscellaneous	58,384	10,935	33,431	795,712
Aggregate Total	6,682,216	904,289	2,042,485	30,297,000

The above figures do not represent the total production, the output of a few small manufacturers not being returned.

Sir Alfred Mond's Mission

THE arrival of Sir Alfred Mond and his party at Baghdad from Palestine attracted the notice of a number of students, who made a demonstration against Zionism. The party, numbering 11, including Lady Mond and Lady Erleigh, were received at the British Residency, which they made their headquarters until they left on Wednesday. It is stated that the object of the visit was to investigate the position of the proposed pipe line between Iraq and the Mediterranean, and also Iraq's chemical requirements, particularly the use of artificial manures, so as to overcome the high salt content of the soil.

Chemical Trade Returns for January

Continued Expansion of Export Trade

THE Board of Trade Returns for January indicate that during the month of January imports of chemicals, drugs, dyes and colours amounted in value to £1,347,362, a decrease of £125,403 on January, 1927, and an increase of £222,899 on January, 1926; exports were valued at £2,074,161, an

increase of £441,296 on January, 1927, and of £154,736 on January, 1926; while re-exports of imported chemicals were valued at £72,650, a decrease of £877 on January, 1927, and of £23,074 on January, 1926. The figures for the periods of 12 months formerly given are now omitted. The detailed returns are as follows:—

	Imports				Quantities.		Value.	
	Quantities.		Value.		Month ended	Month ended	Month ended	Value.
	January 31,	1927.	January 31,	1927.	January 31,	1927.	January 31,	1927.
CHEMICAL MANUFACTURES AND PRODUCTS—								
Acid Acetic	tons	974	1,515	£41,804	66,426			
Acid Tartaric	cwt.	1,858	518	8,873	2,669			
Bleaching Materials ..		11,833	18,497	9,324	12,167			
Borax	tons	4,140	10,013	4,822	8,342			
Calcium Carbide ..		69,009	96,501	46,524	56,270			
Coal Tar Products, not elsewhere specified								
value		—	—	194,400	40,565			
Glycerine, Crude	cwt.	2,095	410	8,603	1,414			
Glycerine, Distilled ..		45	780	178	3,436			
Red Lead and Orange Lead	cwt.	3,877	4,383	7,350	6,704			
Nickel Oxide		—	4	—	31			
Potassium Nitrate (Salt-petre)	cwt.	13,176	8,943	13,444	9,194			
Other Potassium Compounds	cwt.	426,887	495,906	105,294	121,309			
Sodium Nitrate		101,065	176,374	62,440	102,663			
Other Sodium Compounds	cwt.	44,494	46,922	28,527	31,414			
Tartar, Cream of		5,570	3,840	19,703	16,949			
Zinc Oxide	tons	1,599	869	54,381	27,805			
All Other Sorts	value	—	—	312,347	321,514			
DRUGS, MEDICINES, ETC.—								
Quinine and Quinine Salts	oz.	158,007	49,892	11,876	3,901			
Bark Cinchona, etc.	cwt.	1,804	4,232	7,314	18,710			
Other Sorts	value	—	—	115,601	128,539			
DYES AND DYESTUFFS, ETC.—								
Intermediate Coal Tar Products	cwt.	12	288	265	2,738			
Alizarine		154	13	5,591	301			
Indigo, Synthetic ..		—	—	—	—			
Other Sorts		4,054	3,593	93,652	74,817			
Cutch		3,006	2,247	5,290	3,743			
Other Dyeing Extracts ..		3,447	4,106	9,466	10,590			
Indigo, Natural		5	90	125	2,100			
Extracts for Tanning (solid or liquid)	cwt.	133,694	99,403	135,193	104,488			
PAINTERS' COLOURS AND MATERIALS—								
Barytes, Ground, and Blanc Fixe	cwt.	64,587	49,584	14,623	11,296			
White Lead (dry) ..		11,163	16,904	20,190	23,431			
Other Sorts	value	101,889	99,389	135,469	133,836			
Total of Chemicals, Drugs, Dyes, and Colours	value	—	—	1,472,765	1,347,362			
Exports								
Acid Sulphuric	cwt.	1,318	3,254	2,124	3,849			
Acid Tartaric		1,133	2,007	6,088	12,922			
Ammonium Chloride (Muriate)	tons	190	371	5,348	8,142			
Ammonium Sulphate—To Spain and Canaries	tons	1,903	438	23,230	4,268			
Italy		384	715	4,363	7,183			
Dutch East Indies	tons	—	11,085	—	115,021			
Japan		499	8,746	5,978	88,085			
British West India Islands and British Guiana	tons	186	411	2,424	4,169			
Other Countries ..		5,452	6,806	61,198	67,712			
Total		8,514	28,201	97,193	286,438			
Total of Chemicals, Drugs, Dyes, and Colours	value	—	—	—	—	1,632,865	2,074,161	
Imports								
Bleaching Powder (Chloride of Lime)	cwt.	40,035	40,655	17,809	17,372			
COAL TAR PRODUCTS—								
Anthracene	cwt.	21	1,005	14	419			
Benzol and Toluol galls.		18,861	121	2,966	13			
Carbolic Acid	cwt.	8,371	28,156	15,757	50,849			
Naphtha	galls.	1,288	8,850	149	1,031			
Naphthalene	cwt.	1,475	1,086	718	991			
Tar Oil, Creosote Oil, etc.								
galls.		1,414,023	4,826,000	47,239	175,857			
Other Sorts	cwt.	70,082	49,042	36,293	26,919			
Total	value	—	—	103,136	256,079			
Copper, Sulphate of	tons	2,114	2,860	44,814	61,141			
Disinfectants, etc.	cwt.	30,403	36,013	90,433	88,320			
GLYCERINE, Crude								
" .. "		799	4,450	3,224	12,993			
Glycerine, Distilled ..		14,109	11,743	70,983	47,611			
Total	value	14,908	16,193	74,207	60,604			
POTASSIUM COMPOUNDS—								
Chromate and Bichromate	cwt.	4,089	2,120	7,079	3,908			
Nitrate (Saltpetre) ..		855	822	1,703	1,068			
Other Sorts		1,127	2,278	10,515	11,557			
Total	value	6,071	5,220	19,297	17,973			
SODIUM COMPOUNDS—								
Carbonate	cwt.	400,504	474,782	122,138	138,226			
Caustic		134,246	243,321	103,819	157,161			
Chromate and Bi-chromate	cwt.	1,831	2,746	2,569	3,915			
Sulphate, including Salt Cake	cwt.	37,748	71,768	5,555	8,857			
Other Sorts		47,573	63,247	54,421	84,220			
Total	value	621,902	855,864	288,502	392,379			
Zinc Oxide	tons	47	59	2,115	2,662			
Other Sorts	value	—	—	276,278	260,005			
Total of Chemical Manufactures and Products	value	—	—	1,027,344	1,466,986			
DRUGS, MEDICINES, ETC.—								
Quinine and Quinine Salts	oz.	120,700	157,630	13,834	15,811			
Other Sorts	value	—	—	209,055	233,056			
Total	value	—	—	223,489	248,867			
DYES AND DYESTUFFS—								
Products of Coal Tar	cwt.	5,258	5,143	52,370	49,316			
Other Sorts		5,848	7,113	7,046	6,445			
Total	value	11,106	12,256	59,416	55,761			
PAINTERS' COLOURS AND MATERIALS—								
Barytes, Ground, and Blanc Fixe	cwt.	1,243	2,225	642	1,246			
White Lead (dry) ..		3,234	4,093	6,752	7,438			
Paints and Colours, in Paste form	cwt.	51,487	53,576	113,775	106,212			
Paints and Enamels Prepared	cwt.	31,015	31,792	102,135	104,374			
Other Sorts		50,259	42,355	99,312	83,277			
Total	value	137,238	134,041	322,616	302,547			
Total of Chemicals, Drugs, Dyes, and Colours	value	—	—	—	—			

Re-exports		Value.	
Quantities.	Month ended	Month ended	Value.
	January 31, 1927.	January 31, 1928.	£
CHEMICAL MANUFACTURES AND PRODUCTS—			
Acid Tartaric cwt.	50	52	323 409
Borax	13	116	13 118
Coal Tar Products value	—	—	628 343
Potassium Nitrate (Salt-petre) cwt.	79	105	134 178
Sodium Nitrate	83	115	56 65
Tartar, Cream of	1,012	323	3,899 1,471
Other Sorts value	—	—	8,730 22,798
DRUGS, MEDICINES, ETC.—			
Quinine and Quinine Salts oz.	13,280	10,123	1,526 1,828
Bark Cinchona cwt.	490	1,200	3,707 4,830
Other Sorts value	—	—	39,795 28,876
DYES AND DYESTUFFS—			
Cutch cwt.	877	803	1,341 1,219
Other Dyeing Extracts cwt.	68	236	932 2,053
Indigo, Natural	2	4	48 125
Extracts for Tanning	789	425	1,121 577
PAINTERS' COLOURS AND MATERIALS cwt.	6,140	3,246	5,539 7,617
Total of Chemicals, Drugs, Dyes, and Colours value	—	—	73,527 72,650

"Unsaturateds" in Coal Gas

A Fuel Research Investigation

THERE has been issued, as Fuel Research Technical Paper No. 19 of the Department of Scientific and Industrial Research, a monograph entitled *The "Unsaturated Hydrocarbons" in the Gases from the Carbonisation of Coal*, by A. B. Manning, J. G. King and F. S. Sinnatt (H.M. Stationery Office, pp. 19, 6d.).

This paper deals with one part of the investigations in progress at H.M. Fuel Research Station into the composition of the products formed during the carbonisation of coal. The unsaturated hydrocarbons present in the gases and light spirits are of particular interest. In order to investigate the problem in detail it was necessary to devise a convenient method for the determination of the several compounds in the gases. The method now put forward involved the separation of the unsaturated gases as their bromine compounds and the regeneration of the ethylene, propylene and butylene from the latter by the action of a zinc-copper couple. The resulting gas is then analysed by (a) absorption of propylene and butylene by 87 per cent. sulphuric acid; and (b) combustion of a further quantity of the gas over copper oxide at 700° C. and determination of the volume of carbon dioxide produced.

The method has been applied to various gases obtained by the distillation of coal. The low-temperature gas obtained by the carbonisation of a blend of 60 per cent. Mitchell Main and 40 per cent. Pooley Hall coals at 620° C. contained 4.3 per cent. of unsaturated hydrocarbons, this being reduced by oil scrubbing to 3.4 per cent. Of this 3.02 per cent. was obtained as brominated olefines, distributed thus: 1.18 per cent. ethylene, 1.16 per cent. propylene, and 0.68 per cent. butylene. Butadiene was present to the extent of 0.15 per cent. A high temperature gas obtained from Kinneil coal by carbonisation in a vertical retort at 1,350° C. contained 2.9 per cent. of unsaturated hydrocarbons, reduced by oil scrubbing to 2.4 per cent., of which 2.26 per cent. was recovered as olefines, distributed as follows: 1.9 per cent. ethylene, 0.28 per cent. propylene, 0.08 per cent. butylene; 0.02 per cent. of butadiene was also present.

The method has also been applied to the gases produced by the carbonisation of Dalton Main coal in a setting of horizontal retorts at the Fuel Research Station at temperatures ranging from 400° to 700° C. The results are summarised in tabular and graphical form.

THE MINISTRY OF TRANSPORT inquiry into the Port of London Authority proposal to allow oil tankers to discharge at Purfleet was continued in London during the week.

Oil and Colour Chemists' Meeting

DR. J. N. GOLDSMITH, F.I.C., presided at a meeting of the Oil and Colour Chemists' Association held at the Institute of Chemistry, London, on Thursday, February 9, when two papers were read. The first was by Mr. T. Hedley Barry, and was entitled "Malayan Damars. Part II." It gave a short account of some investigations which Mr. Hedley Barry has carried out during the last few years in connection with these substances. Dr. J. J. Fox, of the Government Laboratory, read a communication on "The Composition of Zinc Chromes." He said that the object of the paper was to put forward something definite about the composition of zinc chromes or zinc chromates. He had had to investigate this question in connection with a certain matter, and was rather troubled through the discrepancies found in the literature as to what zinc chrome really was. So far as any formula could be assigned to zinc yellow or zinc chromate of average commercial grades, the analyses indicated $5\text{ZnO} \cdot 4\text{CrO}_3 \cdot \text{K}_2\text{O} \cdot 4\text{H}_2\text{O}$, which required (per cent.) $\text{ZnO} 41.8$, $\text{CrO}_3 41.1$, $\text{K}_2\text{O} 9.7$, $\text{H}_2\text{O} 7.4$. The ammonium zinc chromates occupied a special position, for they fitted in approximately with the formula $2\text{ZnO} \cdot 2\text{CrO}_3 \cdot (\text{NH}_4)_2 \cdot \text{O} \cdot \text{H}_2\text{O}$. Too much importance should not, however, be given to these approximate agreements with stoichiometrical ratios. It was pointed out that good potassium-zinc-chromes are sufficiently constant in composition to enable the pigment to be utilised as a "standard" pigment for reference purposes in resistance tests for paints, apart from colour permanency, the usual precautions for obtaining a product of physical uniformity being allowed for.

Nitro-Cellulose Lacquers

Dr. Smith's Account of Recent Developments

SPEAKING at a meeting of the Manchester Section of the Oil and Colour Chemists' Association on Friday, February 10, Dr. Stanley Smith, in the course of a paper on "Recent Developments in Nitro-cellulose Lacquers," said the products were in steadily increasing demand in the wood-working, steel office furniture, and domestic refrigerator industries, as well as in the motor-body finishing trade, where their employment was now a commonplace. The accepted cellulose used as a raw material for nitration was still cotton linters and cotton waste.

As regards solvents, the range of those to which a place should be assigned under the heading "recent developments" was that consisting of the mono-alkyl esters of ethylene and propylene glycol. An interesting series of samples which were on the table before him included the mono-methyl ether of ethylene glycol, the mono-ethyl ether of ethylene glycol, the mono-butyl ether of ethylene glycol, the mono-ethyl ether of diethylene glycol, iso-propyl alcohol, iso-propyl acetate, iso-butyl alcohol, and iso-butyl acetate.

Institution of Chemical Engineers

Annual Meeting

THE annual meeting of the Institution of Chemical Engineers will be held on Thursday and Friday, March 8 and 9, at the New Princes' Restaurant, London. On the evening of Friday, the annual dinner of the Institution will be held (tickets price 12s. 6d. exclusive of wines). The detailed arrangements are as follows:—March 8, "The Theory of Magnetic Separation," by Professor B. W. Holman; "The Combustion of Powdered Coal: the influence of the degree of fineness of the particles," by Dr. B. Moore. March 9, 11.30 a.m., sixth annual corporate meeting (open only to members of the Institution), followed at 12 noon by the president's address, by Sir Alexander Gibb, on "The Economics of Power as applied to Chemical Engineering." This session is open to all those interested. Later in the day there will be a paper on "The Treatment of Effluents from Beet Sugar Factories," by Dr. O. Spengler, director of the Institute of the Sugar Industry, Berlin. At 7.30 p.m. there will be a reception by the president, and at 8 p.m. the annual dinner, at which Sir William Alexander, M.P., will be the guest of the evening. Full particulars of the meetings and tickets of admission may be obtained on application to the hon. secretary of the Institution, Abbey House, Westminster, London, S.W.1.

Petroleum Act Prosecution

Transport of Carbon Bisulphide

At the Greenwich Police Court, on Tuesday, C. Peters, Ltd., of Abinger Road, Deptford, were summoned for contravening the Petroleum Act, 1926, by causing to be conveyed a quantity of bisulphide of carbon in drums not securely closed, so as to prevent leakage (not being closed with screw bungs and leather washers); for causing it to be carried in steel containers not being loaded and carried bung uppermost, nor loaded and carried in wooden perforated cases; for failing to carry on the vehicle a supply of sand or other efficient means of extinguishing fire; and for not taking steps to ensure that the men employed in the conveyance of chemicals were acquainted with and carried out the regulations.

Evidence was given that on November 21 a lorry, carrying 40 drums of bisulphide of carbon, started from Deptford for Bristol, where the chemical was to be used for the manufacture of artificial silk stockings. Just outside Slough there was an explosion, and one of the drums was found to be on fire. Police and firemen failed to extinguish the flames with their appliances, and the driver, named Pickett, very courageously mounted the lorry, and drove it farther down the road, where sand and soil were available, and the fire was eventually got under. There was no sand on the vehicle. It was found that the bungs of the drums were not uppermost, but at the sides.

For the defence, evidence was given that a copy of the regulations was affixed to the wall of the office, where other notices affecting employees were placed.

Mr. McKenna imposed on each summons the maximum penalty for a first offence (£10). Thus the defendants had to pay £40, with £5 5s. costs.

Dye Agreement Dispute

At the Manchester Chancery Court on Monday, February 13, before the Vice-Chancellor, Mr. Courthorpe Wilson, K.C., leave to amend the statement of claim was granted to the plaintiff in an action, brought by Mr. Lionel Blundell, the principal shareholder and managing director of the North British Chemical Co. (England), Ltd., against the British Dyestuffs Corporation, Ltd. On behalf of the plaintiff Mr. C. Atkinson, K.C., said that on July 27 of last year Mr. Blundell entered into an agreement with the British Dyestuffs Corporation that he would dismantle his works and disclose to them his secret processes for the manufacture of dyestuffs, and the defendants on their part were to supply the plaintiff with dyestuffs on favourable terms for a period of five years. The works, said counsel, were dismantled and the processes disclosed. The defendants then said that what had passed between the parties was a draft agreement, subject to revision, and they proposed new terms which, in the opinion of the plaintiff, would destroy the value of the agreement to him. The plaintiff, therefore, brought an action claiming a declaration that there was a valid and binding contract. The amendments he desired to make in his statement of claim related to matters which had happened since the issue of the warrant. On behalf of the defendant company, Mr. Abbott said their case was that there had not been a concluded agreement.

Cellulose Acetate Silk Co.

THE lists were opened on Monday for subscriptions to 950,000 ordinary shares of £1 at par and 950,000 deferred shares of 1s. at 2s. per share in the Cellulose Acetate Silk Co., Ltd. The issue was over-subscribed. Sir John Pennefather has joined the board. Dr. Herbert Levinstein has been appointed scientific adviser. In addition to the factory at Lancaster of the Non-Inflammable Film Co. and the plant and machinery, the company is acquiring (a) the right to the exclusive use of their process for the manufacture and sale of cellulose acetate within the British Empire, excepting Canada; and (b) the benefit of the existing patents of Mr. W. P. Dreaper, so far as these are applicable for the production of artificial silk from cellulose acetate. When fully equipped the factory will have a capacity for producing eight tons of acetate silk per day.

Chemical Matters in Parliament

Beet Sugar Factories

In a reply to Mr. Duckworth (House of Commons, February 9), Mr. Guinness stated that nineteen beet sugar factories had been built in Great Britain, all of which were in receipt of the subsidy except one factory, working the desiccation process, which had not yet submitted claims. There were schemes for the erection in 1928 of beet sugar factories at Brigg (Lincolnshire), Chichester (Sussex) and Bridgwater (Somerset).

Rubber Industry Bill

Mr. Waddington, supported among others by Dr. G. C. Clayton, presented the Rubber Industry Bill (House of Commons, February 10) to provide for the collection of a contribution by rubber manufacturers in Great Britain and Northern Ireland to the funds of the Research Association of British Rubber and Tyre Manufactures, and for other purposes connected therewith. It will be read a second time on March 3.

The Dead Sea Salts Concession

In answer to Captain Cazalet (House of Commons, February 13), Mr. Amery said that the Crown Agents for the Colonies, acting on behalf of the Palestine and Trans-Jordanian Governments, had continued their negotiations with Major Tulloch and Mr. Novomeysky. The results of the negotiations to date were now under the examination of the two Governments concerned.

Beet Sugar Effluents

Answering Major George Davies (House of Commons, February 13), on behalf of the Department of Scientific and Industrial Research, Lord E. Percy stated that satisfactory progress was being made with the experiments in the biological treatment of the waste waters of beet sugar factories. The data accumulated in the course of a semi-commercial scale trial at one of the factories during the manufacturing campaign just closed were now under consideration. While promising results were undoubtedly being obtained, it was as yet too early to say whether the experiments would lead to an economic solution of the problem. It was understood that at most of the factories additional plant had been installed for the improvement of the effluent.

Building Science Abstracts

A NEW monthly publication of interest to all concerned in building construction and allied subjects will be placed on sale by H.M. Stationery Office within a few days. Its purpose is to provide, for the building industry, up-to-date summaries of the latest developments in the science and practice of building which are taking place throughout the world. Such a service is already provided for the members of other professions by periodicals such as *Biological Abstracts* and *Chemical Abstracts*, and the Department of Scientific and Industrial Research has now decided to prepare for general circulation *Building Science Abstracts*. This has become possible partly as a result of generous support promised by the Institute of Builders. In this periodical all the more important articles appearing all over the world relating to building will be abstracted by the staff of the Building Research Station at Watford. Publication will be monthly except in August, but a double number (August/September) will appear at the end of September. Subject and name indexes will be issued annually. The subscription rate for the series of eleven monthly issues (including one double number) has been fixed at 10s., post free. Single copies are available, price 9d. each (post free, 10d.).

"Britain's Industrial Future"

"BRITAIN'S Industrial Future," the report of the Liberal Industrial Inquiry (the publication of which by Ernest Benn, Ltd., at 2s. 6d., was noted in our last issue), is attracting considerable attention and has already been discussed in the House of Commons. It is a very wide survey of the British industrial position and contains valuable matter for a constructive policy. While, of course, it is an official Liberal document, that does not affect the value of its information and suggestions. It promises to be a subject of keen discussion for some time to come, and no serious student of industrial conditions and policy can well afford to be without it.

From Week to Week

THE ANNUAL DINNER of the Oil and Colour Chemists' Association will be held on April 18, at the Hotel Cecil, Strand, London.

WHAT IS CLAIMED to be the world's first monument to Wilhelm Konrad Röntgen, was unveiled in Leningrad on February 10.

GERMAN DELIVERIES IN KIND, under the reparations scheme, amounted in value last year to £28,920,000, of which chemicals delivered amounted to £2,850,000 and dyestuffs to £580,000.

MR. J. WESTALL PEARSON, chairman of the British Oil and Cake Mills, Ltd., and a director of Lever Brothers, Ltd., has been elected chairman of the Liverpool Marine and General Insurance Co., Ltd.

IN ORDER THAT BUSINESS may begin immediately, there will be no ceremony at the opening of the London section of the British Industries Fair, White City, Shepherd's Bush, on Monday, February 20.

MR. CHRISTOPHER DALLEY, M.I.P.T., M.I.E.E., read a paper on "Causes of Fire in the Petroleum Industry, with Methods of Prevention" before the Institution of Petroleum Technologists on Monday.

A SERIES OF LECTURES on "Chemistry and Daily Life," is being given at Plymouth under the auspices of the local education committee by Dr. S. Glassstone, lecturer in physical chemistry at the University of the South-West.

BEET SUGAR NEWS.—A paper on "The Science of Beet Growing," was read by Mr. Morley Davies, advisory chemist of the Harper Adams Agricultural College, Newport, Salop, at a beet sugar conference at the college, on February 8.

THE I.G. FARBEININDUSTRIE has bought two of the new type of low speed electric locomotives which are now being turned out by Krupps. The locomotive is said to work from any source of electricity supply and to have a pulling power out of all proportion to its speed.

IN A CIRCULAR TO SHAREHOLDERS of Lawes Chemical Manure Co., Ltd., it is stated that when the next annual accounts are submitted, the directors will give the shareholders the opportunity of considering the winding-up of the company, and if this is then decided upon the necessary meeting of the company will be called.

THE STANDING COMMITTEE (General Merchandise) appointed by the Board of Trade will hold their inquiry as to whether imported sheet lead and lead pipes, including lead encased pipes and "compo" pipes, should bear an indication of origin, at 11.30 a.m. on Tuesday, February 28, at the Board of Trade Offices, London, S.W.1.

THE STANDARD INDUSTRIAL TRUST has just acquired the whole of the share capital of the Broughton Copper Co., whose principal works are at Manchester. The company also controls the whole of the share capital of John Bibby and Co. (Garston), the well-known copper smelters and manufacturers.

THE ANNUAL DINNER of the Mining Society of the University of Birmingham was held on Wednesday, February 8, at the Midland Hotel, Birmingham. Professor K. Neville Moss presided, and among those present were Sir C. Grant Robertson, Dr. A. E. Dunstan, Professor A. W. Nash, Lieut.-Col. S. J. M. Auld, and Mr. Evan Williams.

THE COMMITTEE of Cardiff Technical College recommend the appointment of Dr. Francis Arnall, lecturer of Chemistry at Chelsea Polytechnic, to the post of head of the department of chemistry and applied chemistry at the technical college, in succession to Mr. H. W. Webb, who is leaving to be principal of the Aston Technical College, Birmingham.

A MEETING of the Evening Students Chemical Society of the Manchester College of Technology was held on Thursday, February 9, when a lecture was given by Dr. F. L. Pyman, F.R.S. A cut crystal vase was presented to him upon his retirement from the College and from his position as president of the Society. Professor Kenner, F.R.S., was welcomed to the Society.

IN CONNECTION with the National Wood Congress from March 4-7, an exhibition of wood and its derivatives will be held from March 4-18 in grounds adjoining those of the Lyons International Fair. The exhibition will include sections for charcoal ovens, gas producers, and displays of cellulose wood pulp and chemical dyeing and tanning products derived from wood.

THE EIGHTH ORDINARY MEETING of the shareholders of the Sentinel Waggon Works, Ltd., was held on Tuesday, at 20, Caxton Street, London, S.W.1. The chairman said that the year had not been up to expectations. It started well, but sales fell away in the middle of the year, and had only recovered toward the end of the period, too late to show, in the trading results. A new six-wheel wagon had been a great success.

THE DIRECTORS OF THE CHESHIRE UNITED SALT Co., LTD., announce that the extension of plant originally decided upon has been completed within the stipulated time, and the output of salt has been doubled since March last. The profits now being earned are stated to be in excess of estimates, and as the demand for the company's products still exceeds its output capacity, it has been decided to proceed at once with further extensions.

WE HAVE RECEIVED A COPY of the February number of *Concord*, the house organ of the Liverpool Borax Co., Feed Water Specialists Co., and Andrew Maxwell.

A SUCCESSFUL SMOKING CONCERT was held by the London Section of the British Association of Chemists, at Broad Street Station Restaurant, on Friday, February 10.

IT IS ANNOUNCED that a further battery of retorts for the distillation of coal will be erected during the next three months by Low Temperature Carbonisation, Ltd., at Barugh.

MR. J. GARDNER, chairman of the Mount Vernon Colliery Co., and Mr. J. W. Murray, chairman of United Water Softeners, Ltd., have joined the board of the Buell Combustion Co., Ltd.

FROM THE ESTIMATES for the Chilean budget it is deduced in some quarters there will be a reduction on the export duty at the half-year unless the Chilean Government has calculated on smaller sales of nitrates.

THE DIVISION OF CHEMISTRY of the South African Department of Agriculture has issued, in monograph form, two papers by Mr. P. R. v. d. R. Copeman, entitled, "Studies in the Growth of Grapes" (Parts II and III).

D. H. KILLEFFER, for a number of years associate editor of the *Journal of Industrial and Engineering Chemistry*, has accepted the position of chief engineer in charge of development and research of the Dry Ice Corporation.

AN ORDER was made by Mr. Justice Eve, in the Chancery Division, on Monday, for the compulsory winding-up of Suzuki and Co., Ltd. The order was made on the petition of the Equitable Trust Co., supported by the Nederlandsch Bank.

DAVID HAMAN, aged 20, foreman of the nitroglycerine department of Cooke's Explosives Factory, near Portmadoc, was killed in an explosion in a hut, on February 9. Several other workmen about 100 yards away, were injured slightly.

MEMBERS OF THE STAFF of the Glasgow University Chemistry Department have arranged to give a series of four lectures on chemical subjects to the Workers' Educational Association in Glasgow at Saturday afternoon meetings at the University.

THE COUNCIL OF THE IRON AND STEEL INSTITUTE has decided to award the Bessemer gold medal of the Institute for 1928 to Mr. Charles M. Schwab, of New York, chairman of the Bethlehem Steel Corporation, and president of the American Iron and Steel Institute.

THE NON-INFLAMMABLE FILM CO., LTD., and J. M. Newton and Sons, Ltd., announce that they have concluded a joint arrangement for the formation of a new company to take over their patents and processes in relation to safety glass, and to manufacture at a factory already selected in the Greater London area.

ARTIFICIAL SILK NEWS.—An issue, at par, of 240,000 ordinary shares at 10s. each and 240,000 deferred shares of 1s. each in the Rennes Artificial Silk Co., Ltd., was made on Thursday. The company has acquired works at Rennes (Brittany) and will commence immediately the manufacture of high grade material.

THE SOCIETA ITALIANA AMMONIA is to be formed by the fusion of the following:—The Societa Alto Adige Ammonia (capital 40 million lire); the Societa Piemontese Ammonia (capital 8 million lire); and the Societa Meridionale Ammonia (capital 10 million lire). The new company will have a capital of 100 million lire.

THE CHILEAN NITRATE COMMITTEE, of Friars House, New Broad Street, London, are preparing to appoint on their European organisation a director of agricultural research and of experiments and demonstrations in the application of fertilisers; and also a director of fertiliser propaganda by means of pamphlets, posters, leaflets, and other publications.

MR. T. H. TIZARD, F.R.S., addressing a meeting at the Royal Colonial Institute on Wednesday, said but for the deterrent of the initial cost of £50,000 the Department of Scientific and Industrial Research could save the railways £500,000 a year by testing the fuel consumption of locomotives, and hundreds of thousands by diagnosing the cause of the "disease" that placed the locomotive for a great portion of its life in the hands of the "doctor."

THE MINISTER OF AGRICULTURE AND FISHERIES and the Board of Agriculture for Scotland announce that, in pursuance of the powers conferred on them by Section 23 of the Fertilisers and Feeding Stuffs Act, 1926, they propose to make regulations for the purposes of that Act. Copies of the draft regulations, which deal with methods of sampling and analysis, the manner of marking parcels, limits of variation, and several other matters, can be obtained from H.M. Stationery Office or through any bookseller, price od.

Obituary

DR. FRIEDRICH RASCHIG (owner of the well-known German chemical firm of the same name), of Ludwigshafen-am-Rhein, on February 4, aged 64. He published many papers on pure and applied chemistry, one of his best known researches being that on the production of hydrazine. He also did a great deal of work on artificial resins. Apart from his chemical work, Dr. Raschig found time for political activity, and at the time of his death was a member of the Reichstag.

References to Current Literature

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WOOD PRESERVATION.—Experiments in wood preservation. VI. Recent laboratory work. L. P. Curtin and W. Thordarson. *Ind. Eng. Chem.*, January 1, pp. 28-30.

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ANALYSIS.—The testing of drinking water for iodine. *Chemiker Zeitung*, February 11, pp. 122-123.

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ORGANIC.—The catalytic rôle of mercury in the sulphonation of anthraquinone. A. Meyer. *Bulletin Soc. Chim. France*, December, pp. 1627-1638 (in French).

SOAP.—Relation between the properties of soaps and the compositions of fatty acids. III. Surface tension and emulsifying power of palmitic, oleic and lauric acid soaps. M. Hirose. *J. Soc. Chem. Ind. Japan* (supplemental binding), December, pp. 216-218B (in English).

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

283,600. CATALYTIC DECOMPOSITION OF CYCLIC COMPOUNDS. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, July 12, 1926.

Aromatic, hydro-aromatic, or heterocyclic compounds are converted into compounds containing a smaller number of carbon atoms by the action of hydrogen at temperatures above 300° C. in the presence of mixed dehydrogenating catalysts. The catalysts may contain activating additions such as elements of the 4th to 7th groups of the periodic system, such as titanium, vanadium, chromium, manganese, or boron, or alkali metals, or alkaline earth metals, or aluminium, or zinc. The catalyst and the activating addition may be in the form of free elements, or oxides, or other compounds. If cyclic compounds such as higher phenols or their hydrogenation products are to be converted into compounds free from oxygen, containing a smaller number of carbon atoms, the catalyst may contain iron, cobalt, nickel, molybdenum or vanadium. These catalysts are also suitable for the preparation of benzene and its nearest homologues from its higher homologues or from polynuclear aromatic hydrocarbons or from hydroaromatic or heterocyclic compounds. The temperatures depend on the stability of the material treated, and vary from 300° to 550° C. The reaction must proceed beyond the formation of compounds simply hydrogenated in the nucleus. Thus carbazol may be converted into benzene and aniline, or into benzene and ammonia or nitrogen, by means of hydrogen at or above 300° C. The cyclic compounds should be freed from contact poisons such as sulphur, or arsenic, or metal carbonyls, before treatment. The gaseous hydrocarbons which are split off may be treated with steam to obtain a mixture of hydrogen and carbon monoxide or dioxide. Examples are given of the treatment of carbazol with hydrogen in the presence of a catalyst consisting of a reduced mixture of aluminium hydroxide and iron oxide to obtain benzene and ammonia; cresol with hydrogen in the presence of the same catalyst to obtain benzene or toluene; a fraction of low temperature tar containing 45 per cent. phenols with hydrogen in the presence of a catalyst prepared from iron oxide, magnesia, and ammonium vanadate, to obtain an oil of which 50 per cent. distils below 180° C.; crude naphthalene with hydrogen in the presence of a catalyst prepared from iron oxide, and ammonium molybdate to obtain benzene, toluene, *o*-xylene, etc.; and crude naphthalene with hydrogen in the presence of a catalyst prepared from molten iron oxide, alumina, and an alkali to obtain benzene.

283,661. ACCELERATOR FOR THE VULCANIZATION OF RUBBER OR RUBBER COMPOUNDS. L. B. Sebrell, Cuyahoga Falls, Ohio, U.S.A. Application date, October 26, 1926.

It is known that some thiazole compounds, particularly mercapto-benzo-thiazole and its homologues, accelerate the vulcanization and improve the ageing characteristics of rubber. In the formation of 1-mercaptop-benzo-thiazole from aniline, carbon disulphide, and sulphur, the reaction may proceed in two different ways, one of which results in the production of anilido-benzo-thiazole, which has no accelerating effect on rubber. In this invention the formation of undesirable compounds is avoided by producing mercapto-benzo-thiazole by heating a mixture of ammonia, carbon bisulphide, aniline, and sulphur, in an autoclave to a temperature of 175°-250° C. and pressure of 600-1,000 lb. per square inch. In this reaction the aniline and carbon bisulphide produce a small amount of phenyl-dithio-carbamic acid which is unstable and forms the corresponding salt with ammonia, and the ammonium phenyl-dithio-carbonate reacts with sulphur to form mercapto-benzo-thiazole.

283,679. ACCELERATOR FOR THE VULCANIZATION OF RUBBER. W. J. Kelly, 157, Casterton Avenue, Akron, Ohio, U.S.A. Application date, November 9, 1926.

Mercapto-benzo-thiazole is obtained by heating aniline, sulphur, and carbon bisulphide in an autoclave to 280° C.

285° C. at a pressure of 600-700 lb. per square inch, the yield being 95-97 per cent. The product is dissolved in sodium hydroxide, and the mercapto-benzo-thiazole precipitated by adding hydrochloric acid.

283,701. ABSOLUTE ALCOHOL, PROCESS FOR PRODUCING. E. C. R. Marks, London. From U.S. Industrial Alcohol Co., 110, East 42nd Street, New York. Application date November 29, 1926.

Alcohol containing a large proportion of water is distilled to obtain alcohol of high strength, and fusel oil is removed during the distillation. The fusel oil is purified by redistillation, and the high-strength alcohol is dehydrated by distillation with a third liquid, preferably benzol, adapted to form an azeotropic mixture with the alcohol and water. The alcohol obtained from this mixture is distilled with the weak alcohol or with the fusel oil. The dehydration condensate separates into layers, and the layer containing the highest percentage of alcohol is dehydrated with the high-strength alcohol. The layer containing the high percentage of alcohol is subjected to a washing operation with water to remove the benzol.

283,702. LOWER ALIPHATIC ACIDS, TREATMENT OF. British Celanese, Ltd., and H. Dreyfus, 8, Waterloo Place, London, S.W.1, and C. I. Haney, of British Celanese, Ltd., Spondon, near Derby. Application date, November 30, 1926.

The process is particularly for the production of concentrated acetic acid from dilute acid, such as crude pyrolytic acid, or waste acetic acid obtained in the acetylation of cellulose. It has been found that acetic acid of 90-95 per cent. strength can be obtained by extracting the dilute acid with a mixture of a hydrocarbon and a solvent for the acid, both of lower boiling point than the acid. If a mixture of ether and petroleum ether is employed, acetic acid up to 100 per cent. strength can be obtained. Other suitable mixtures are chloroform and petroleum ether and/or gasoline, acetone oil and 90 per cent. benzol. The extraction may be carried out by mixing the acid with the medium and allowing it to separate into layers or by passing the two liquids into a column in counter-current. In another method, the extraction medium may be introduced into the acid as vapour. The acid may be separated from the extract by fractional distillation.

283,771-2. ALKALI METAL NITRATES, PRODUCTION OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application dates, April 25 and 29, 1927.

283,771. Alkali metal nitrates are made by the action of nitric acid or nitrogen oxides on alkali metal chloride solutions. The hydrochloric acid is simultaneously expelled, and the nitrogen oxides are recovered by means of sulphuric acid. The treatment of the gaseous mixture with sulphuric acid is effected under pressure, but this does not appreciably increase the solubility of the hydrochloric acid in sulphuric acid.

283,772. Alkali metal chlorides are treated with nitrogen oxides and oxygen or air, to obtain alkali metal nitrates. The chloride solution is of such strength that the nitrate is deposited in the solid state, either at once or on cooling. The reaction is effected under pressures up to 50 atmospheres, and the size of the reaction chamber is thereby much reduced, e.g., an increase of pressure to 6 atmospheres enables the size of the reaction chamber to be reduced to 1 per cent. of the space required for operating at atmospheric pressures.

283,822. 2-PHENYLQUINOLINE 4-CARBOXYLIC ACID, MANUFACTURE OF. A. J. Stephens, London. From R. von Wulff, 231, Friedrichstrasse, Berlin. Application date, September 23, 1927.

Isatin bisulphite of sodium or potassium is heated with acetophenone in the presence of concentrated caustic soda or potash. The presence of sulphite prevents oxidation by the air, and the formation of dyestuffs and other impurities is minimised. The product is pure 2-phenyl quinoline-4-carboxylic acid having a melting point of 212°-213° C.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention:—259,970 (I.G. Farbenindustrie Akt.-Ges.), relating to azo dyestuffs, see Vol. XV, p. 620; 260,998 (L. Cassella and Co., Ges.), relating to dyestuffs of the anthanthrone series, see Vol. XVI, p. 69; 262,405 (Aluminum Co. of America), relating to purification of alumina, see Vol. XVI, p. 167; 265,232 and 265,964 (I.G. Farbenindustrie Akt.-Ges.), relating to vat dyestuffs, see Vol. XVI, pp. 381 and 402; 269,166 (I.G. Farbenindustrie Akt.-Ges.), relating to catalytic production of hydrocyanic acid from formamide, see Vol. XVI, p. 579; 271,085 (Titan Co. Aktieselskabet), relating to titanium compounds, see Vol. XVII, p. 62; 276,017 (I.G. Farbenindustrie Akt.-Ges.), relating to precipitation of copper from liquors, see Vol. XVII, p. 47 (Metallurgical Section); 278,747 (Metallbank and Metallurgische Ges. Akt.-Ges.), relating to production of zinc salts, see Vol. XVII, p. 536; 279,037 (Appareils et Evaporateurs Kestner), relating to nitrate of lime, see Vol. XVII, p. 622; 279,786 (Titan Co. Aktieselskabet) relating to reduction of solutions containing titanium, iron, and other compounds, see Vol. XVII, p. 623.

International Specifications not yet Accepted

282,001. 4¹-AMINO-2-BENZOYLBENZOIC ACID. Newport Co., Carrollville, Wis., U.S.A. International Convention date, December 8, 1926.

4¹-halogen-2-benzoylbenzoic acid is heated under pressure in the presence of copper sulphate, and at an elevated temperature, to obtain 4¹-amino-2-benzoylbenzoic acid.

282,011. TREATING RUBBER LATEX. Nangatuck Chemical Co., Elm Street, Nangatuck, Conn., U.S.A. (Assignees of W. A. Gibbons, 561, West 58th Street, New York.) International Convention date, December 9, 1926.

Concentrated latex with alkali preservative is neutralised or slightly over-neutralised with phosphoric or acetic acid, sodium phosphate or zinc acetate, and the plasticity and cohesiveness on the mixing mill are improved. The acid treatment improves the rubber, more especially when it contains a non-volatile alkali such as potassium hydroxide.

282,023. TREATING ZIRCONIUM ORES. Rhenania Kunheim Verein Chemischer Fabriken Akt.-Ges., 10, Reichstagsufer, Berlin. International Convention date, December 13, 1926.

A mixture of zirconium ore, an alkaline earth carbonate, oxide, or hydroxide, and a halogenide of an alkali or alkaline earth metal is subjected to a sintering process at 1,200° C. in a revolving reverberatory furnace in the absence of carbon or carbides. Steam may also be added, or may be present as the result of the combustion of fuel rich in hydrogen, and enables a lower temperature to be used. The product is a zirconium oxide soluble in acids.

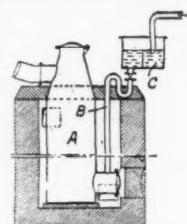
282,083. AMINO COMPOUNDS. Fabriques de Produits de Chimie Organique de Laire, 129, Quay d'Issy-les-Moulineaux, Issy, Seine, France. (Assignees of Mignonac, 2, Rue Goethe, Bas-Rhin, France.) International Convention date, December 9, 1926.

Nitrogenous compounds such as oximes and nitriles are treated with hydrogen in the presence of a catalyst and ammonia to obtain primary amines. The reaction may take place in gaseous or liquid phase, and the ammonia may be present as a salt. Examples are given of the treatment of acetonitrile vapour with ammonia and hydrogen in the presence of reduced nickel at 180° C. to obtain ethylamine; benzonitrile vapour with ammonia and hydrogen in the presence of reduced copper at 250° C. to obtain benzylamine, and propanone oxime under similar conditions to obtain 2-aminopropane; acetonitrile dissolved in alcoholic ammonia with ammonium chloride and hydrogen to obtain ethylamine; benzyl cyanide with ammonia and hydrogen to obtain β -phenylethylamine; a mixture of benzonitrile and finely divided nickel with ammonia gas and hydrogen at 100° C. to obtain benzylamine.

282,049. CARBON DISULPHIDE. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 13, 1926. Addition to 237,716. (See THE CHEMICAL AGE, Vol. XIII, p. 254.)

Sulphur is melted in a vessel C and passes through a superheater B, which may be a coil surrounding the reaction

chamber A or may be within the chamber if the latter is heated internally by electrical means. The superheated



282,049

vapour passes into the base of the chamber A which contains carbon.

282,107. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 13, 1926.

To convert α -oxyazo dyestuffs into more soluble dyestuffs they are treated with chlorosulphonic acid or its esters in the presence of pyridine, dimethylaniline, or other tertiary base. The products can be treated with copper or chromium salts. In an example, the dyestuff 4-chloro-2-aminophenol \rightarrow β -naphthol is treated with chlorobenzene, pyridine and chlorosulphonic acid at 60°-70° C., the product is poured into a sodium carbonate solution and the chlorobenzene and pyridine steam-distilled off. The product gives orange shades on wool. Other examples are also given.

282,111. ARYLAMINO-NAPHTHALENE DERIVATIVES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 13, 1926.

An amino- or oxy-substituted naphthalene or a derivative other than sulphonic or carboxylic acids of 1:8-diamino-, dioxy-, or aminoxy-naphthalene is heated in the presence of a bisulphite solution with an aminobenzene derivative containing a further free or substituted amino group or a free or substituted hydroxy group. The products give dyeings fast to water on animal fibres and artificial silk. Naphthalene derivatives employed are α - and β -naphthol, α - and β -naphthylamine, 2:7 and 1:5-dioxy-naphthalene. Aminobenzene derivatives employed are α -, m - and p -phenylene-diamine, α -, m - and p -aminophenol, leuco-indophenols, leuco-indamines, and substitution products, 4:4'-aminoxy-diphenylamine, 4:4'-diamino-diphenylamine-2-sulphonic acid.

282,112. POROUS METALS. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 13, 1926. Addition to 270,763.

Porous metals are obtained by treating an alloy with a solvent having a selective action on one of the metals. Thus, brass is treated with caustic soda, and the sodium zincate then dissolved out with hydrochloric acid to obtain porous copper. Other copper alloys may be similarly treated. Nickel is obtained from its alloys with zinc and aluminium, iron from ferro-silicon, and tin from tin-sodium by treating with water or alcohol. Alloy mixtures can be obtained by dissolving out one of these metals. The products are catalysts.

282,330. MIXED FERTILISERS. F. G. Liljenroth, 14, Eriksbergsgatan, Stockholm. International Convention date, December 14, 1926.

Crude calcium phosphate is leached with nitric acid, and ammonium sulphate then added to precipitate calcium sulphate. The solution is filtered, neutralised with ammonia, and evaporated to obtain a fertiliser. The calcium sulphate may be treated with ammonia and carbon dioxide to obtain ammonium sulphate and calcium carbonate, the latter being treated to recover carbon dioxide. Sulphur dioxide may be obtained from the calcium sulphate and used to produce sulphuric acid. Potassium compounds may be added to the fertiliser.

282,347. DIHYDROXYACETONE. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 18, 1926. Addition to 269,950.

Dihydroxyacetone is obtained from glycerine by means of bacteria which are cultivated in a nutrient solution containing substances extracted from the waste products of malt, such as brewer's grains.

LATEST NOTIFICATIONS.

284,661. Process for preparing pure alumina. Zaidan Hojin Rikagaku Kenkyujo. February 3, 1927.

284,685. Protection of apparatus against acids. Soc. Chimique Des Usines Du Rhône. February 4, 1927.

284,644. Process for the preparation of 1-phenyl-2-methylamino-propanol-1. Merck, Dr. W., Merck, Dr. K., Merck, L., Merck, W., and Merck, Dr. F. February 2, 1927.

284,700. Process of and apparatus for nitrating glycerine, glycol, and similar alcohols. Schmid, Dr. A., and Meissner, J. February 5, 1927.

284,701. Process of and apparatus for the separation and after-separation of nitroglycerine or nitroglycol, residual acids, and like. Schmid, Dr. A., and Meissner, J. February 5, 1927.

284,702. Process of and apparatus for uninterruptedly washing nitroglycerine, nitroglycol, and like alcohols. Schmid, Dr. A. and Meissner, J. February 5, 1927.

284,703. Distillation of tar. Barrett Co. February 5, 1927.

284,652. Process for the dyeing of artificial silk from cellulose derivatives, such as cellulose esters, ethers, and their conversion products. I. G. Farbenindustrie Akt.-Ges. February 2, 1927.

284,707. Process for obtaining a new chemical product. Ehrenreich, A. February 4, 1927.

284,670. Process for the manufacture of water-soluble products from lignite and similar fossil materials. I. G. Farbenindustrie Akt.-Ges. February 3, 1927.

284,655. Process for hydrogenating hydrocarbons or carbon. Hansen, F. J. M. February 2, 1927.

284,656. Manufacture of new dyestuffs and their application. Soc. of Chemical Industry in Basle. February 2, 1927.

284,676. Method of transferring dyestuffs to fabrics. Sadtler, H. S. February 3, 1927.

284,978. Plate-gripping device for photographic magazines. I. G. Farbenindustrie Akt.-Ges. February 5, 1927.

284,998. Manufacture of 2:3-aminonaphthoic acid. I. G. Farbenindustrie Akt.-Ges. February 7, 1927.

284,999. Process of producing water-resisting colouring on pellicles of cellulose derivatives. I. G. Farbenindustrie Akt.-Ges. February 7, 1927.

Specifications Accepted with Date of Application

257,619. Introducing sulphocyanide groups into organic compounds, Process for. I. G. Farbenindustrie Akt.-Ges. August 27, 1925.

258,241. Recovering acid and resinous matter from the acid sludges formed in the refining of mineral oils. W. Demann. September 9, 1925.

261,383. Condensation products derived from thionaphthene-2:3-dicarboxylic acid. I. G. Farbenindustrie Akt.-Ges. November 10, 1925.

263,104. Azo dyestuffs, Manufacture of. I. G. Farbenindustrie Akt.-Ges. December 15, 1925.

263,191. 2-amido-4-nitrophenoxethanol or-propandiol. Chemical Works (formerly Sandoz). December 19, 1925.

263,483. Activation of silicic acid gel, Process for. I. G. Farbenindustrie Akt.-Ges. December 22, 1925.

265,193. Phthaloyl-2:3-thionaphthene and derivatives thereof, Manufacture of. I. G. Farbenindustrie Akt.-Ges. January 29, 1926.

265,197. Chemical manures, Manufacture of. Rhenania Kunheim Verein Chemischer Fabriken Akt.-Ges., and H. Brenek. February 1, 1926. Addition to 242,512.

265,919. Art of vulcanising rubber. Goodyear Tire and Rubber Co. February 12, 1926.

267,104. Lead bullion containing other metals, Refining of. G. K. Williams. March 6, 1926.

270,656. Cellulose acetate, Processes and apparatus for the continuous manufacture of cellulose acetate. Soc. Chimique des Usines du Rhône. May 10, 1926.

284,450. Silicic acid compounds, Processes for preparing neutral to weakly acid water-soluble. J. A. von Wulffing and A. Busch. January 11, 1927.

284,459. Ores, Treatment of—for the production of metal. D. Croese. January 20, 1927.

284,507. Hydrocarbon oils, Process for cracking. C. P. Dubbs. April 29, 1927.

284,458. Unsaturated aldehydes, Manufacture of. O. Y. Imray. (I. G. Farbenindustrie Akt.-Ges.) January 19, 1927.

Applications for Patents

A. C. Spark Plug Co. Filters. 3,712. February 6. (United States, February 5, 1927.)

Adams, H., British Dyestuffs Corporation, Ltd., and Shepherdson, A. Manufacture of dyestuffs. 3,820. February 7. (August 3, 1927.)

Arnold, C., and Humble Oil and Refining Co. Reclaiming distillation residues. 3,725. February 6.

Arnold, C., and Standard Oil Development Co. Pyrolysis of hydrocarbon oil. 4,295. February 10.

Barrett, F. L., Bleacher's Association, Ltd., and Kershaw, W. Treatment of fabrics containing acetyl silk. 4,031. February 9.

Boehringer, A., and Boehringer Sohn, C. H. Manufacture of maleic acid, etc. 3,979. February 8. (Germany, September 24, 1927.)

British Celanese, Ltd., and Olpin, H. C. Manufacture of aromatic compounds. 3,804. February 7.

British Celanese, Ltd., and Ellison, T. Treatment of cellulose derivatives. 4,354. February 11.

Broadbent and Sons, Ltd., T. Centrifugal machines. 3,621. February 6.

Burmah Oil Co., Ltd., Downer, R. E., and Minchin, S. T. Distillation of hydro-carbon liquids. 3,983. February 8.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of cyclic compounds containing aldehyde groups. 3,699. February 6.

Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Manufacture of condensation products from hydro-aromatic ring ketones. 3,830. February 7.

Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Manufacture of stable medicinally active salts of para-amino-phenyl-stibinic acid. 4,387. February 11.

Coley, H. E. Production of zinc. 3,990. February 8.

Consortium für Elektrochemische Industrie Ges. Manufacture of esters of vinyl alcohol. 4,409. February 11. (Germany, February 12, 1927.)

Defris, R. Manufacture of activated carbon. 3,799. February 7. (Austria, March 3, 1927.)

Deutsch, L. Hungária Műtrágya Kénsav és Vegyi Ipar Részvénny Társaság. Manufacture of copper-sulphate. 4,225. February 10.

Du Pont de Nemours and Co., E. I. Colour-printing pastes. 4,119. February 9. (United States, February 9, 1927.)

Ewan, T., and Imperial Chemical Industries, Ltd. Catalyst for production of hydrocyanic acid. 4,184. February 10.

Gray, G. W., and Levy, S. I. Electrolysis of ferrous chloride. 4,226. February 10.

Gray, G. W., and Levy, S. I. Method of obtaining hydrochloric acid. 4,227. February 10.

Gray, G. W., and Levy, S. I. Treatment of chloride solutions. 4,234. February 10.

Gray, G. W., and Levy, S. I. Treatment of copper-rich material. 4,239. February 10.

Gray, G. W., and Levy, S. I. Separation of lead from solutions. 4,301. February 10.

Harris, G. J., and Imperial Chemical Industries, Ltd. Joint production of sulphuric acid and cement. 3,616. February 6.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of gaseous olefines from hydrogen, etc. 3,664. February 6.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of 1:3-butylene-glycol. 4,096. February 9.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of rubber. 4,097. February 9.

I.G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Catalytic conversion of mixtures of carbon monoxide and hydrogen. 4,098. February 9.

I.G. Farbenindustrie Akt.-Ges. Manufacture of electrolytic zinc. 3,700. February 6. (Germany, February 14, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of 2:3-aminonaphthoic acid. 3,857. February 7. (Germany, February 7, 1927.)

I.G. Farbenindustrie Akt.-Ges. Producing water-resisting colouring. 3,858. February 7. (Germany, February 7, 1927.)

I.G. Farbenindustrie Akt.-Ges. Process for dehydrating vapour mixtures. 4,250. February 10. (Germany, February 11, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of dyestuffs. 4,411. February 11. (Germany, February 11, 1927.)

Imperial Chemical Industries, Ltd. Production of aldol, etc. 3,615. 3,617. February 6.

Krishnamurthy, P. Production of synthetic resins from aromatic hydrocarbons. 3,633. February 6. (British India, October 17, 1927.)

Lüdecke, K. Production of trimethylamine glycol. 4,122. February 9. (Germany, July 8, 1927.)

Selden Co. Catalytic oxidation of organic compounds. 3,643. February 6. (United States, August 8, 1927.)

Selden Co. Process of purifying phthalic anhydride. 3,950. February 8. (United States, February 8, 1927.)

Soc. of Chemical Industry in Basle. Manufacture of coloured varnishes. 3,859. February 7. (Switzerland, February 10, 1927.)

Soc. of Chemical Industry in Basle. Manufacture of dyestuffs. 4,410. February 11. (Switzerland, February 12, 1927.)

United Water Softeners, Ltd. Production of sterilising agents. 3,674. February 6.

Verein für Chemische Industrie Akt.-Ges. Manufacture of cellulose esters. 3,978. February 8. (Germany, January 5.)

Walden, R. Manufacture of activated carbon. 3,799. February 7. (Austria, March 3, 1927.)

Walter, G. Methylol compounds of amides, etc. 3,677. February 6. (November 29, 1926.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.
 ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.
 ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity strength, and locality.
 ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.
 ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
 AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.
 BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.
 BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.
 BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)
 CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d Carr. paid.
 COPPER SULPHATE.—£25 to £25 10s. per ton.
 METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 2d. to 2s. 7d. per gall.; pyridinised industrial, 2s. 4d. to 2s. 9d. per gall.; mineralised, 3s. 3d. to 3s. 7d. per gall.; 64 O.P., rd. extra in all cases; prices according to quantity as from January 1, 1928.
 NICKEL SULPHATE.—£38 per ton d/d.
 NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
 POTASH CAUSTIC.—£30 to £33 per ton.
 POTASSIUM BICHROMATE.—4d. per lb.
 POTASSIUM CHLORATE.—3d. per lb., ex wharf, London, in cwt. kegs.
 SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia £37 to £45 per ton, Carr. paid.
 SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.
 SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.
 SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.
 SODIUM ACETATE 97/98%.—£21 per ton.
 SODIUM BICARBONATE.—£10 10s. per ton, Carr. paid.
 SODIUM BICHROMATE.—3d. per lb.
 SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.
 SODIUM CHLORATE.—2d. per lb.
 SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.
 SODIUM PHOSPHATE.—£4 per ton, f.o.b. London, casks free.
 SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.
 SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.
 SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.
 SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6d. to 7d. per lb. Crude 60's, 2s. 3d to 2s. 4d. per gall. prompt; lower for forward delivery.
 ACID CRESYLIC 99/100.—2s. 11d. to 3s. per gall. 97/99.—2s. 7d. to 2s. 10d. per gall. Pale, 95%; 2s. 3d. to 2s. 6d. per gall. Dark, 95%, 2s. 1d. to 2s. 3d.
 ANTHRACENE.—A quality, 2d. per unit. 40%, £5 per ton.
 ANTHRACENE OIL, STRAINED.—8d. to 8d. per gall. Unstrained, 7d. to 8d. per gall.
 BENZOLE.—Prices at works; Crude, 8d. to 9d. per gall.; Standard Motor, 1s. 1d. to 1s. 2d. per gall.; 90%, 1s. 2d. to 1s. 3d. per gall.; Pure, 1s. 5d. to 1s. 6d. per gall.
 TOLUOLE.—90%, 1s. 4d. to 1s. 8d. per gall. Firm. Pure, 1s. 6d. to 1s. 11d. per gall.
 XYLOL.—1s. 3d. to 1s. 7d. per gall. Pure, 1s. 9d. per gall.
 CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall.; middle oil, 8d. to 9d. per gall. Heavy, 8d. to 9d. per gall. Standard specification, 7d. to 7d. ex works. Salty, 7d. per gall., less 14%.
 NAPHTHA.—Crude, 7d. to 8d. per gall. Solvent 90/160, 1s. 3d. to 1s. 4d. per gall. Solvent 95/160, 1s. 3d. to 1s. 4d. per gall. Solvent 90/190, 10d. to 1s. 2d. per gall.
 NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed or hot pressed, £8 per ton.
 NAPHTHALENE.—Crystals, £13 to £13 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.
 PITCH.—Medium soft, 57s. 6d. to 75s. per ton, f.o.b., according to district. Nominal.
 PYRIDINE.—90/140, 5s. 6d. to 6s. 6d. per gall. 90/180, 3s. 6d. to 5s. per gall. Heavy, 3s. to 3s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:
 ACID AMIDONAPHTHOIC DISULPHO (1-8-2-4).—10s. 9d. per lb.
 ACID ANTHRANILIC.—6s. per lb. 100%.
 ACID BENZOIC.—1s. 8d. per lb.
 ACID GAMMA.—4s. 6d. per lb.
 ACID H.—3s. per lb.
 ACID NAPHTHONIC.—1s. 6d. per lb.
 ACID NEVILLE AND WINTHROP.—4s. 9d. per lb.
 ACID SULPHANILIC.—8d. per lb.
 ANILINE OIL.—8d. per lb. naked at works.
 ANILINE SALTS.—8d. per lb. naked at works.
 BENZALDEHYDE.—2s. 3d. per lb.
 BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.
 BENZOIC ACID.—1s. 8d. per lb.
 o-CRESOL 29/31° C.—5d. per lb.
 m-CRESOL 98/100%.—2s. 3d. to 2s. 5d. per lb.
 p-CRESOL 32/34° C.—2s. 3d. to 2s. 5d. per lb.
 DICHLORANILINE.—1s. 10d. per lb.
 DIMETHYLANILINE.—1s. 11d. per lb.
 DINITROBENZENE.—8d. per lb. naked at works. £75 per ton.
 DINITROCHLOROBENZENE.—£84 per ton d/d.
 DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.
 DIPHENYLAMINE.—2s. 10d. per lb. d/d.
 a-NAPHTHOL.—2s. per lb. d/d.
 B-NAPHTHOL.—10d. per lb. d/d.
 a-NAPHTHYLAMINE.—1s. 3d. per lb.
 B-NAPHTHYLAMINE.—3s. per lb.
 o-NITRANILINE.—5s. 9d. per lb.
 m-NITRANILINE.—3s. per lb. d/d.
 p-NITRANILINE.—1s. 8d. per lb.
 NITROBENZENE.—6d. per lb. naked at works.
 NITRONAPHTHALENE.—1s. 3d. per lb.
 R. SALT.—2s. 2d. per lb.
 SODIUM NAPHTHIONATE.—1s. 8d. per lb. 100% basis d/d.
 o-TOLUIDINE.—8d. per lb.
 p-TOLUIDINE.—2s. per lb. naked at works.
 m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.
 N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.
 CHARCOAL.—6 to 9 per ton, according to grade and locality. Foreign competition severe.
 IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.
 RED LIQUOR.—9d. to 10d. per gall.
 WOOD CREOSOTE.—9d. per gall. Unrefined.
 WOOD NAPHTHA, MISCELLY.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.
 WOOD TAR.—£4 to £5 per ton.
 BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.
 ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.
 BARYTES.—3s 10s. to £6 15s. per ton, according to quality.
 CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.
 CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.
 CARBON BLACK.—5d. per lb., ex wharf.
 CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.
 CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.
 DIPHENYLGUANIDINE.—3s. 9d. per lb.
 INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5d. to 6d. per lb.
 LAMP BLACK.—£3 15s. per ton, barrels free.
 LEAD HYPOSULPHITE.—9d. per lb.
 LITHOPHONE, 30%.—£22 10s. per ton.
 MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.
 SULPHUR.—£9 to £11 per ton, according to quality.
 SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
 SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.
 THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.
 THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.
 VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.
 ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.
 ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb.
 ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots. ACID, CAMPHORIC.—19s. to 21s. per lb. ACID, CITRIC.—1s. 8½d. to 1s. 10d. per lb., less 5%. ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots. ACID, PYROGALIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb. ACID, SALICYLIC, B.P. PULV.—1s. 3d. to 1s. 4d. per lb.; Technical, 11½d. to 11¾d. per lb. ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb. ACID, TARTARIC.—1s. 3½d. per lb., less 5%. ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities. AMIDOL.—7s. 6d. to 9s. per lb., d/d. AMIDOPYRIN.—8s. to 8s. 3d. per lb. AMMONIUM BENZOATE.—3s. to 3s. 3d. per lb., according to quantity. 18s. per lb. ex Gum. AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb. ATROPINE SULPHATE.—9s. per oz. BARBITONE.—5s. 9d. to 6s. per lb. BENZONAPHTHOL.—3s. 3d. per lb. spot. BISMUTH CARBONATE.—11s. 4d. to 11s. 7d. per lb. BISMUTH CITRATE.—10s. 4d. to 10s. 7d. per lb. BISMUTH SALICYLATE.—10s. 7d. to 10s. 10d. per lb. BISMUTH SUBNITRATE.—9s. 7d. to 9s. 10d. per lb. BISMUTH NITRATE.—6s. 7d. to 6s. 10d. per lb. BISMUTH OXIDE.—14s. 7d. to 14s. 10d. per lb. BISMUTH SUBCHLORIDE.—1s. 4d. to 14s. 7d. per lb. BISMUTH SUBGALLATE.—8s. 7d. to 8s. 10d. per lb. Extra and reduced prices for smaller and larger quantities of all' bismuth salts respectively. BISMUTH ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 1½d. per lb.; 12 W. Qts. 1s. 0d. per lb.; 30 W. Qts., 1s. per lb. BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots. BROMIDES.—Ammonium, 2s. to 2s. 3d. per lb.; potassium, 1s. 8½d. to 1s. 11½d. per lb.; sodium, 2s. to 2s. 2d. per lb.; granulated 4d. per lb. less; all spot. Large quantities at lower rates. CALCIUM LACTATE.—1s. 2d. to 1s. 4d. per lb. CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices. CHLOR HYDRATE.—3s. 2d. to 3s. 4d. per lb. CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity. CREOSOTE CARBONATE.—6s. per lb. ETHERS.—S.G. '730—1s. 1d. to 1s. 2d. per lb., according to quantity; other gravities at proportionate prices. FORMALDEHYDE.—£39 per ton, in barrels ex wharf. GUAIACOL CARBONATE.—4s. 9d. to 5s. per lb. HEXAMINE.—2s. 3d. to 2s. 6d. per lb. HOMATROPE HYDROBROMIDE.—30s. per oz. HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz. HYDROGEN PEROXIDE (12 VOL%).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall. HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots. HYDROPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb. IRON AMMONIUM CITRATE.—B.P., 2s. 2d. to 2s. 6d. per lb. Green, 2s. 6d. to 2s. 11d. per lb.; U.S.P., 2s. 4d. to 2s. 7d. per lb. IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity. MAGNESIUM CARBONATE.—Light commercial, £31 per ton net. MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots. MENTHOL.—A.B.R. recrystallised B.P., 16s. 6d. per lb. net for January delivery; Synthetic, 9s. to 10s. per lb.; Synthetic detached crystals, 9s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 9s. 0d. per lb. MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10s. to 5s. 11d. per lb. Special prices for larger quantities. METHYL SALICYLATE.—1s. 5d. to 1s. 9d. per lb. METHYL SULPHONATE.—9s. to 9s. 3d. per lb. METOL.—9s. to 11s. 6d. per lb. British make. PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder. PARALDEHYDE.—1s. 1d. to 1s. 4d. per lb. PHENACETIN.—2s. 6d. to 2s. 9d. per lb. PHENAZONE.—4s. to 4s. 3d. per lb. PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb. POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—94s. to 100s. per cwt., less 2½ per cent. POTASSIUM CITRATE.—B.P.C., 1911, 1s. 8d. to 1s. 11d. per lb.; U.S.P., 2s. 1d. to 2s. 4d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots. POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity. POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London. POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot. QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins. RESORCIN.—2s. 10d. to 3s. per lb., spot. SACCHARIN.—55s. per lb.; in quantity lower. SALOL.—2s. 4d. per lb. SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb. SODIUM CITRATE, B.P.C., 1911.—1s. 10d. to 2s. 1d. per lb., B.P.C., 1923.—2s. 2d. to 2s. 3d. per lb. for 1-cwt. lots. U.S.P., 2s. 1d. to 2s. 3d. per lb., according to quantity. SODIUM FERROCYANIDE.—4d. per lb., carriage paid. SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs. SODIUM NITROPRUSSIDE.—16s. per lb. SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra. SODIUM SALICYLATE.—Powder, 1s. 7d. to 1s. 9d. per lb. Crystal, 1s. 8d. to 1s. 10d. per lb. SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb. SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K. SULPHONAL.—6s. 9d. to 7s. per lb. TARTAR EMETIC, B.P.—Crystal or powder, 2s. to 2s. 1d. per lb. THYMOL.—Puriss., 10s. to 10s. 3d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb. AUBEPINE (EX ANETHOL).—11s. per lb. AMYL ACETATE.—2s. per lb. AMYL BUTYRATE.—4s. 9d. per lb. AMYL SALICYLATE.—2s. 9d. per lb. ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb. BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb. BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb. BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb. BENZYL BENZOATE.—2s. 6d. per lb. CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb. COUMARIN.—10s. per lb. CITRONELLOL.—13s. 6d. per lb. CITRAL.—8s. 3d. per lb. ETHYL CINNAMATE.—6s. per lb. ETHYL PHthalATE.—3s. per lb. EUGENOL.—8s. 3d. per lb. GERANIOL (PALMAROSA).—17s. 9d. per lb. GERANIOL.—6s. to 10s. per lb. HELIOTROPINE.—4s. 6d. per lb. ISO EUGENOL.—13s. per lb. LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb. LINALYL ACETATE.—Ex Bois de Rose, 18s. 6d. per lb. Ex Shui Oil, 14s. 6d. per lb. METHYL ANTHRANILATE.—8s. 6d. per lb. METHYL BENZOATE.—4s. per lb. MUSK KETONE.—35s. per lb. MUSK XYLOL.—6s. 9d. per lb. NEROLIN.—4s. 6d. per lb. PHENYL ETHYL ACETATE.—11s. per lb. PHENYL ETHYL ALCOHOL.—10s. 6d. per lb. RHODINOL.—32s. 6d. per lb. SAFROL.—1s. 6d. per lb. TERPINEOL.—1s. 8d. per lb. VANILLIN.—15s. 3d. to 16s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb. ANISE OIL.—2s. 9d. per lb. BERGAMOT OIL.—26s. per lb. BOURBON GERANIUM OIL.—14s. per lb. CAMPHOR OIL.—9d. per lb. CANANGA OIL, JAVA.—13s. 3d. per lb. CINNAMON OIL LEAF.—6s. 9d. per lb. CASSIA OIL, 80/85%.—6s. 9d. per lb. CITRONELLA OIL.—Java, 2s. per lb., c.i.f. U.K. port. Ceylon, pure. 1s. 9d. per lb. CLOVE OIL.—5s. 6d. per lb. EUCALYPTUS OIL, AUSTRALIAN.—2s. 1d. per lb. LAVENDER OIL.—Mont Blanc, 38/40%. Esters, 15s. 9d. per lb. LEMON OIL.—9s. per lb. LEMONGRASS OIL.—3s. 9d. per lb. ORANGE OIL, SWEET.—12s. 9d. per lb. OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 65s. per oz. PALMA ROSA OIL.—12s. 6d. per lb. PEPPERMINT OIL.—Wayne County, 14s. 9d. per lb.; Japanese. 7s. 3d. per lb. PETITGRAIN.—7s. 6d. per lb. Sandalwood, Mysore, 26s. 6d. per lb., 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

LONDON, February 15, 1928.

THE market continues steady with a fair volume of business passing and practically no changes in prices. Export trade is improving with a greater amount of inquiry, especially from the Far East, which previously had been rather inactive.

General Chemicals

ACETONE.—Unchanged in price at £64 to £66 with a satisfactory demand.

ACID ACETIC continues at unchanged firm rates of £37 to £38 for 80% material with a moderate demand.

ACID CITRIC.—Extremely firm with supplies rather short. Nominal price about 1s. 9d. to 1s. 10d., less 5%; demand fair.

ACID FORMIC in steady request at about £47 for 85% material.

ACID LACTIC is firm and in good demand at about £43 for best 50% weight pale grades.

ACID TARTARIC is extremely firm and in rather short supply with inquiry fair. Price 1s. 4d., less 5%.

ALUMINA SULPHATE is in good demand and price holding firm at about £5 15s.

AMMONIUM CHLORIDE.—The demand is not so brisk and price inclined to be slightly easier. Fine white crystals offering about £18 10s.

ARSENIC.—Dull with price easy at about £18.

BARIUM CHLORIDE is slow of sale, although price is now steadier at about £8 for prime white crystals.

COPPER SULPHATE is scarce for early delivery and in brisk demand; price extremely firm at £25.

CREAM OF TARTAR.—Again advanced with inquiry much brisker. Best quality obtaining £96 per ton, with prospects of higher prices.

EPSOM SALTS in good request with price firm.

FORMALDEHYDE.—The demand is increasing and price rules steady at about £41.

LEAD ACETATE is in better request and price is again steadier at about £42 for white, with brown at about £41.

LIME ACETATE.—Grey quality in rather short supply with a good demand.

METHYL ACETONE is in fair demand at unchanged price of about £55.

POTASSIUM CAUSTIC.—Higher prices are maintained with good demand.

POTASSIUM CHLORATE is in better request with supplies for near delivery rather short. Price is firm at £29 per ton.

POTASSIUM PERMANGANATE.—Demand is rather quiet with price unchanged at about 5d. per lb.

POTASSIUM PRUSSIATE is in fair demand and price holding firm at £59 to £63 per ton according to quantity.

SODIUM ACETATE is in good request and supplies appear to be still on short side. Price ruling firm at £21 to £22.

SODIUM BICHROMATE.—Good every day demand at about 3d. per lb.

SODIUM CHLORATE continues active and firm at about £27 to £28 per ton.

SODIUM HYPOSULPHITE.—Steady with demand for commercial grade rather quiet. For photographic pea quality the demand is increasing.

SODIUM NITRITE is firmer at about £20 for 96/98% material with improved demand.

SODIUM PHOSPHATE is in good request at about £12 per ton.

SODIUM PRUSSIATE is active at firm price of 4½d. per lb.

SODIUM SULPHIDE is unchanged and in fair request at British makers' prices.

ZINC SULPHATE is steady at about £12 10s. for first grade quality.

Coal Tar Products

The market for coal tar products is fairly quiet, and there is little change to report in prices from last week.

90% BENZOL is unchanged, at about 1s. 3d. to 1s. 4d. per gallon, while the motor quality is quoted at 1s. 1d. to 1s. 2d. per gallon.

PURE BENZOL is worth about 1s. 5½d. to 1s. 6½d. per gallon, on rails.

CREOSOTE OIL remains firm, at about 7½d. per gallon, on rails in the North, while the price in London is about 8½d. per gallon.

CRESYLIC ACID.—This market is still very firm, with an upward tendency. The pale quality, 98/100%, is still quoted at 2s. 8d. per gallon, naked, at works, and the dark quality at 2s. 2d. per gallon.

SOLVENT NAPHTHA is still very weak, and can be bought in the provinces at about 8d. per gallon.

HEAVY NAPHTHA is quoted at about 10d. per gallon, on rails.

NAPHTHALENES are still scarce, the 74/76 quality being quoted at about £7 per ton, while the 76/78 quality is quoted at £8 to £8 10s. per ton.

PITCH.—The market has developed a very great weakness and a sale at less than £60 per ton, f.o.b. U.K. ports, was reported during the last few days.

Latest Oil Prices

LONDON, February 15.—LINSEED OIL, quiet at 2s. 6d. to 5s. per ton decline. Spot, ex mill, £28 5s.; February, £27 5s.; March-April, £27 10s.; May-August, £28 10s.; and September-December, £29 7s. 6d. RAPE OIL quiet. CRUDE, extracted, £42 10s.; technical, refined, £44 10s., naked, ex wharf. COTTON OIL steady and occasionally 10s. per ton higher. Refined common edible, £40; Egyptian, crude, £35 10s.; and deodorised, £42 per ton. TURPENTINE inactive. American, spot, 41s.; March-April, 41s. 9d.; May-June, 42s.; and July-December, 42s. 6d. per cwt.

HULL, February 15.—LINSEED OIL.—Spot and February, £27 15s.; March-April, £28; May-August, £28 7s. 6d.; September-December, £29 per ton, naked. COTTON OIL.—Bombay crude, £31 10s.; Egyptian crude (new), £34 10s.; edible refined, £37 15s.; technical, £35; deodorised, £39 15s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £37 15s. per ton, naked. GROUNDNUT OIL.—Crushed/extracted, £42 10s.; deodorised, £46 10s. per ton. SOYA OIL.—Extracted and crushed, £32 10s.; deodorised, £36 per ton. RAPE OIL.—Crude/extracted, £41; refined, £43 per ton. TURPENTINE, 44s. per cwt., net cash terms, ex mill. CASTOR OIL and COD OIL unchanged.

Nitrogen Products

Export.—It is reported from the United States that supplies of sulphate of ammonia are short and the tendency of the market is upwards. On the Continent and in other large consuming countries the heavy spring demand has hardly commenced, but there are indications that producers will be kept very busy to meet requirements for the next few months. Prices remain steady in all markets, producers having no difficulty in adhering to their rising price scale.

Home.—The demand has increased considerably during the last week, large orders coming in from the Western counties and Lincolnshire. In other parts, too, there are signs of a continued

interest in sulphate. The price for February/May delivery continues at £10 13s. per ton, delivered in six-ton lots to farmers' stations.

Nitrate of Soda.—The price continues unchanged at £10 2s. 6d. / £10 4s. per ton. American advices suggest that there are plenty of supplies available, and similar reports have been made from the Continent and some English ports. It remains to be seen whether this quiescence will continue or whether the spring demand will be equal to the optimistic calculations of importers.

South Wales By-Products

SOUTH Wales by-product activities continue to be on a moderate scale, only small business being done in all sections. Pitch remains unsatisfactory and is changing hands round about 70s. a ton, a price which reflects the market. Refined tars have a steady, if moderate, demand. Prices are unchanged, coke oven tar selling at from 8½d. to 9d. per gallon, and gasworks' tar at from 7½d. to 8½d. per gallon, f.o.r. maker's works, and from 10d. to 1s. per gallon delivered in barrels. There is scarcely any demand for solvent and heavy naphthas, and values remain weak. Crude tar continues unchanged, with the demand weak. Patent fuel prices are unchanged, and range from 22s. 6d. to 24s. per ton; coke (best foundry) from 32s. 6d. to 37s. 6d., and other sorts from 25s. to 32s. 6d. per ton. Patent fuel exports during the last four weeks totalled 72,332 tons, while oil imports into Swansea over the same period totalled 24,634,201 gallons.

Olive Oil in Portugal

OLIVE OIL PRODUCTION in Portugal in 1927 is said to have been a record. The total production for the whole country is given as 1,139,729 hectolitres of oil, which is far in excess of the quantity required for consumption in Portugal, so that provided the type of oil is such as to meet foreign taste, there should be a considerable export trade in this article. There are said to be in the country 23,283,900 olive trees of bearing age.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, February 15, 1928.

BUSINESS in the heavy chemical market has been rather quieter during the past week, but one or two fairly important export inquiries have been noted. Prices generally have remained unchanged, but tartaric acid is again dearer.

Industrial Chemicals

ACETONE, B.G.S.—£63 to £66 per ton, ex store, according to quantity.

ACID ACETIC.—98/100%, glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80%, pure, £37 10s. per ton, ex wharf; 80%, technical, £37 10s. per ton, ex store.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton; powdered, £32 per ton, packed in bags, carriage paid, U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—In moderate demand. Now quoted 7d. per lb., f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—In good demand, but some parcels still available at round about 1s. 8d. per lb., less 5%, ex store.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC.—80% quality, £24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the Continent at 3d. per lb., ex wharf. Spot material quoted 3d. per lb., ex store. In better demand.

ACID SULPHURIC.—£2 15s. per ton, ex works, for 144° quality; £5 15s. per ton for 168° quality. Dearsenicated quality 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Still higher, and now quoted 1s. 4d. per lb., less 5% ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM, LUMP POTASH.—Continental material on offer at £8 7s. 6d. per ton, c.i.f. U.K. ports. Crystal meal about the same figure. Lump quality on spot quoted £9 2s. 6d. per ton, ex store.

AMMONIA, ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump £37 per ton, powdered, £39 per ton, packed in 5-cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2d. to 3d. per lb., delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture, unchanged at £23 to £24 per ton, ex station. Continental on offer at £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £17 10s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Rather cheaper and now offered for prompt shipment at £19 10s. per ton, ex wharf. Spot material quoted £20 12s. 6d. per ton, ex store.

BARIUM CARBONATE, 98/100%.—English material on offer at £7 5s. per ton, ex store. Continental quoted £7 per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £6 17s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers' contract price to consumers, £6 12s. 6d. per ton, delivered, minimum 4-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

BORAX.—English manufacturers' price unchanged as follows:—Granulated £19 10s. per ton; crystals, £20 per ton; powdered, £21 per ton. Odd parcels on offer of granulated from America at about £16 per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price, £4 15s. per ton, to £5 5s. per ton, ex station, according to quantity and point of delivery. Continental material quoted £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.

COPPER SULPHATE.—Offered from the Continent at £25 10s. per ton, c.i.f. U.K. ports. British material available at about the same figure, ex store.

FORMALDEHYDE, 40%.—Quoted £37 per ton, c.i.f. U.K. ports. Spot material about £39 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Quoted £30 10s. per ton, ex store.

LEAD, WHITE.—Spot material on offer at £31 per ton, ex store.

LEAD ACETATE.—White crystals quoted £39 15s. per ton, c.i.f. U.K. ports; brown, £38 10s. per ton, c.i.f. U.K. ports. Spot material on offer at £42 15s. per ton, ex store, spot delivery.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASSIUM BICHROMATE.—4d. per lb. delivered, minimum 4-ton lots. Under 4-ton lots, 4d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Rather scarce for immediate delivery. Quoted £25 10s. per ton, ex wharf. Spot material, about £26 10s. per ton, ex store.

POTASSIUM CHLORATE, 99/100%.—Powdered material offered from the Continent at £25 10s. per ton, c.i.f. U.K. ports. Crystals, 30s. per ton more.

POTASSIUM NITRATE.—Refined granulated quality quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Spot material now on offer at about 5d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Unchanged at about 6d. per lb., ex store, spot delivery. Offered from the Continent at 6d. per lb.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton; 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots, carriage paid on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—In good demand and spot material scarce. Quoted £20 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3d. per lb., delivered buyers' works, minimum 4-ton lots. Under 4 and over 2-ton lots 3d. per lb., under 2-ton lots 3d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£3 to £5 5s. per ton, ex quay or station. Powdered or pea quality 27s. 6d. per ton extra.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—In moderate demand and price unchanged at about 4d. per lb., ex store. Offered for prompt shipment from the Continent at 4d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works, for unground quality 52s. 6d. per ton, delivered. Ground quality, 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices now as follows:—Solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton; crystals, 30/32%, £9 2s. 6d. per ton, delivered buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; floristella, £9 10s. per ton; ground American, £9 5s. per ton; ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports. 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental material quoted £11 15s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

A Chamber of Commerce View of Combination

The annual report of the Chemical and Allied Trades Section of the Manchester Chamber of Commerce has just been published, and states that whilst conditions generally have been far from satisfactory there is no reason for undue pessimism. "The ever-growing tendency, both at home and abroad, towards combination and co-operation amongst both manufacturers and users of chemicals has in some measure contributed to the unsettled state which is at present characteristic of the trade. The association of allied interests in many industries will continue for some time yet, but with a cessation of activity in this direction any element of unrest created by it will quickly pass, and full opportunity be given for a return to the settled and normal condition which a general trade revival would bring."

Manchester Chemical Market

(FROM OUR OWN CORRESPONDENT.)

MANCHESTER, February 16, 1928.

THE movement of chemicals on the Manchester spot market this week, except in the case of the bread-and-butter products, has been on somewhat quiet lines, and the possibility of labour troubles in the cotton textile industry does not improve the immediate prospects. There are, however, continued reports from several directions of good deliveries being called for against contract commitments. As to prices, these are steady on the whole, with here and there a slightly easier tendency in evidence.

Heavy Chemicals

A moderate trade is being done in bicarbonate of soda, offers of which remain on the basis of £10 10s. per ton. With regard to sulphide of sodium the demand is quiet, and some cheap material has been on offer, the 60-65 per cent. concentrated solid quality being quoted at round £10 per ton and the commercial material at down to £7 15s. to £8. Prussiate of soda meets with a moderate inquiry and values are about maintained at from 4½d. to 4½d. per lb. A quietly steady business is going through in the case of caustic soda at from £13 7s. 6d. to £15 7s. 6d. per ton, according to quality, these being British makers' contract prices to home users. The demand for hyposulphite of soda is restricted, and values have an easy tendency, commercial being quoted at £9 5s. to £9 10s. per ton, and photographic at round £16. Saltcake is without change in price on the basis of £2 12s. 6d. per ton in contract deliveries, and a moderate movement of this is reported. Phosphate of soda meets with a quiet demand, but values are held at from £12 10s. to £12 15s. per ton. Bichromate of soda is in fair request, and prices are steady at up to 3½d. per lb., according to quantity. Chlorate of soda is on the quiet side, and if anything the tendency is easy; offers are at round 3d. per lb., though fractionally below this is being accepted for a decent order. Both in bleaching powder and alkali a fair business is being transacted, and there is no change in values to report, current quotations being at £7 and £6 2s. 6d. per ton. Nitrate of soda is in moderate request, and values are maintained at £19 to £19 5s. per ton.

Yellow prussiate of potash meets with a fairly steady demand, and offers keep steady at up to 6½d. per lb. In spite of a slow call for the product, values of permanganate of potash are well held at about 5½d. per lb. for the B.P. material and 4½d. for the commercial. The demand for carbonate of potash is on somewhat quiet lines, and the tendency is easier, if anything, current offers ranging from £25 5s. to £25 10s. per ton. Chlorate and bichromate of potash are in moderate inquiry at 2½d. to 3d. and round 4½d. per lb. Caustic potash is selling in fair quantities and quotations are held at £33 5s. per ton for prompt delivery of one to five-ton lots.

In the case of arsenic buying interest is rather inactive and prices are easy, current offers being made at from £17 5s. to £17 10s. per ton at the mines, for white powdered, Cornish makes. Inquiry for sulphate of copper keeps up at a fairly satisfactory level, and values are maintained at round £25 15s. per ton, f.o.b. The acetates of lead are slow and continue to weaken, white being quoted at about £40 per ton and brown at £38 10s. Nitrate of lead remains on the quiet side at £37 per ton. Grey acetate of lime is fairly steady at £16 5s. per ton, with brown material on offer at £10 10s.

Acids and Tar Products

Among the acid products, oxalic is steady and in moderate request at 3½d. to 3½d. per lb. Citric acid is in quiet demand, but prices show continued firmness at from 1s. 8½d. to 1s. 9d. per lb. Tartaric acid is about maintained at round 1s. 3½d. For acetic acid inquiry is fairly active, with 80 per cent. commercial at about £37 10s. per ton and glacial at £66 to £67.

Pitch continues to weaken and there is not much business stirring; current values are now no better than £3 5s. per ton, f.o.b. Crude carbolic acid is steady at about 2s. 4d. per gallon, but crystallised is quiet and cheaper at 6½d. per lb. Solvent naphtha is being offered here at round 10½d. per gallon without attracting very much attention. Creosote oil is in fair request at about 7½d. per gallon.

Company News

MAJOR AND CO.—At an extraordinary general meeting held at York on Wednesday, resolutions were passed reducing the capital of the company from £450,000 to £360,000.

UNITED TURKEY RED CO.—The directors recommend a final dividend on the ordinary shares of 7 per cent., less tax, making 10 per cent. for the year 1927, placing £40,000 to general reserve and carrying forward about £50,000.

HORACE CORY AND CO.—The net profits for 1927 were £8,866, and £2,160 was brought forward, while £1,857 was transferred from the income tax account. A final dividend of 5 per cent. is proposed on the ordinary shares, making 9 per cent. for the year, and carrying forward £1,134.

SENTINEL WAGON WORKS, LTD.—The net trading profit for the year is £41,124, and to it has to be added £1,058 brought forward, making a total disposable balance of £42,182. Of this the directors have applied £15,106 for depreciation of property, plant and machinery, they have written £656 off patents, and £1,750 off the expenses of issuing new Preference shares reducing that item to £1,750.

CROSSLEY BROTHERS.—The report to December 31, 1927, states that the net profit for the year amounts to £51,882, which, added to £73,079 brought forward, makes £124,961. It is proposed to pay a further dividend for the second half of the year at the rate of 7 per cent. per annum on the preference shares, and to carry forward £96,724. The annual meeting will be held in Manchester on February 23, at 3 p.m.

JOHN KNIGHT, LTD.—The report for the year ended November 30, 1927, states that the balance to the credit of profit and loss account is £170,671, which, with the amount of £81,164 brought forward, makes a total of £251,835. The directors propose a dividend on the ordinary capital at 30 per cent. per annum, placing to reserve fund £60,000, leaving a balance to be carried forward of £45,835. It is proposed to increase the ordinary share capital from £70,000 to £200,000 by capitalising £130,000 standing to credit of reserve fund. The annual meeting will be held at the Great Eastern Hotel, London, on February 24, at 12 noon.

SOUTH METROPOLITAN GAS CO.—The total gross receipts from sale of gas, etc., for the year ended December 31, 1927, amounted to £4,887,976 and the net revenue to £561,969. During the past year, states the report, sales of gas have been well maintained and the number of consumers has increased by 4,405. The payment is recommended of a dividend at the rate of 6½ per cent. per annum, less the interim dividend of 2½ per cent. already paid. This will permit an allocation of £82,623 to the employees' copartnership fund. The annual meeting will be held at Cannon Street Hotel, London, on February 22, at 12 noon.

BORAX CONSOLIDATED, LTD.—The directors' report for the year ended September 30, 1927, states that the profits for the period, after providing for all management and administration expenses, are £320,738. The requirements for the debenture interest for the year, the interim dividends on the preference shares and on the preferred ordinary shares paid on May 1, 1927, amounted to £139,640, leaving, with the amount brought forward, a sum of £400,119. There has been placed to buildings, plant, etc., depreciation reserve account, £30,000, and to the credit of the debenture stock redemption sinking fund, the annual premium of £5,825, leaving to the credit of profit and loss account the sum of £364,294. Out of this final dividends were paid on November 1 last on the preference shares, and on the preferred ordinary shares, and the interim dividend on the deferred ordinary shares paid on November 28, leaving a balance of £295,544. The directors propose to pay a final dividend of 1s. per share on the deferred ordinary shares, making 7½ per cent. for the year, to place to income tax accrued to September 30 last £5,000, and to carry forward £233,044. The trade of the company has been much disturbed by competition from the United States, and this continues at the present time. There has been over-production of boron products, and in consequence instability of prices. A substantial saving has been made by the recent development of a mine producing boron mineral of a hitherto unknown composition, which can be economically refined into borax.

TO RESIST

CORROSION

THERE is a Firth Stainless Steel for every application where those twin menaces, corrosion and contamination, are normally dangerous or unwanted, whether it be a mechanism that operates in a "Corrosion zone"—a keen-edged, food-cutting tool which works in food, tobacco or fruit juices—a chemical vat or the blading system of a turbine—one or other of the Firth Stainless Steels will fulfil every required purpose.

For highly stressed parts Firth Stainless Steel F.G. is often used.

For parts that must be hardened and lightly tempered, the F.H. grade of Firth Stainless Steel is suitable. This is the Steel which is used for Sheffield's most famous cutlery.

For Pressing and Stamping work and for maximum resistance to chemical attack, Firth "Staybrite," the super-rustless super-malleable steel is fast becoming the accepted standard material.

TEMPERATURE

SIDE by side with their widespread development of Stainless Steels, Firths have for many years been developing and marketing Heat Resisting Steels.

There is available a wide range of these special steels, each suited to a particular set of imposed conditions.

Wherever mechanisms or parts of plant have to operate under the drastic conditions imposed by high temperatures, exposed to flames or hot complex industrial gases—wherever "scaling" rapidly impairs the strength of such details as flues or furnace fittings—wherever ordinary steels have to make up for loss in tensile strength at high temperature by mere bulk—Firth Heat Resisting Steels will solve the problem successfully.

Specify Firth H.R. Crown steel which combines the optimum tensile strength with resistance to "scaling" at elevated temperature.

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Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the " Registry of County Court Judgments " does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debt. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

WILLIAMS FRANCIS AND SONS, 48, Scruton Street, E.C., manufacturing chemists. (C.C., 18/2/28.) £24 9s. 4d. December 14.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

ZINC OXIDES, LTD., Cardiff. (M., 18/2/28). Reg. January 25, £1,000 debenture, to C. H. Windschuegl, 1, Leadenhall Street, E.C., chemical merchant; general charge. *£3,000, October 29, 1927.

Satisfactions

BRITISH CELANESE, LTD. (late BRITISH CELLULOSE AND CHEMICAL MANUFACTURING CO., LTD. AND BRITISH CELLULOSE AND CHEMICAL MANUFACTURING (PARENT) CO., LTD.), London, S.W. (M.S., 18/2/28.) Satisfaction reg. January 26, £41,818, part of amount reg. July 6, 1923.

BRITISH CYANIDES CO., LTD., London, W.C. (M.S., 18/2/28.) Satisfaction reg. January 25, £35,000, reg. January 5, 1925, and £5,000, reg. August 4, 1925.

London Gazette, &c.

Company Winding Up Voluntarily

CLIFFDALE BARYTES CO., LTD. (C.W.U.V., 18/2/28.) A. E. Cooper, 42, St. John's Hill, Shrewsbury, Incorporated Accountant, appointed as liquidator, February 3. Meeting of creditors at liquidator's office, Thursday, February 23, at 3 p.m.

Notice of Dividend

BLACKLOCK, William Lisle, 16, Finkle Street, Stockton-on-Tees, wholesale druggist. Supplemental dividend, 16s. 4½d., payable February 17, Official Receiver's offices, 80, High Street, Stockton-on-Tees.

New Companies Registered

DEREK MANUFACTURING CO., LTD., 40, Chancery Lane, London, W.C.2 Registered February 8. Nom. capital, £1,500 in £1 shares. To acquire the business of a wholesale and manufacturing chemist carried on at 23, Turners Road, Bow, London, E., by A. W. Bradshaw, as the Derek Manufacturing Co. Directors: E. J. Bass, A. W. Bradshaw.

DUFFIELD IRON CORPORATION, LTD., Registered as a "public" company on February 9. Nom. capital, £250,000 in 100,000 preference shares of £1 each and 3,000,000 ordinary shares of 1s. each. To adopt an agreement with Lindley, Duffield and Co., Ltd., and F. Linley Duffield, to test, exploit, develop and turn to account inventions for improvements in or relating to the reduction of ores, or other inventions, to trade in any manner with regard to the manufactures, appliances, products, components, chemicals, metals, materials, fluids, gases, preparations, spare parts, goods and articles comprised in any specifications or inventions in which the company is interested, to carry on business as advisers, experts, consultants, engineers, metallurgists, technologists and contractors in connection with the reduction of ores, etc. Directors: A.

Windsor-Richards, 29, Gloucester Place, London, W.1; F. L. Duffield, C. N. Bruce, A. Colegate, N. Liversidge.

FAIRCLOUGH, DODD AND JONES, LTD. Registered February 8. Nom. capital, £110,000 in £1 shares. To acquire the undertaking and all or any of the assets of Fairclough, Dodd and Jones, Ltd. (registered in February, 1919), and to carry on the business of importers and exporters of and dealers in oil, seed, turpentine, resin, lard, fat, tallow, tea, chemicals, or dyes, etc. Directors: W. Fairclough, 46, St. Mary Axe, London, E.C.3; Sir Edwin Dodd, A. H. Jones.

A. R. LOGGIE AND CO., LTD. Registered in Edinburgh February 4. Nom. capital, £3,000 in 2,000 ordinary shares of £1 each and 100 6 per cent. cumulative preference shares of £10 each. Manufacturers, importers and exporters of, agents for and dealers in goods of all kinds, chemicals, chemical substances and liquids, etc. Directors: A. R. Loggie, 33, Carsaig Drive, Craigton, Glasgow; J. McDowell.

RENNES ARTIFICIAL SILK CO., LTD., 3, London Wall Buildings, London, E.C.2. Registered as public company on February 9. Nom. capital, £150,000 in 240,000 ordinary shares of 10s. each and 600,000 deferred shares of 1s. each. To carry on or to extend artificial silk works at or near Rennes, Brittany, to adopt an agreement with the Anglo-French Cellulose Silk, Ltd., and to carry on the business of artificial silk or silk manufacturers and merchants, manufacturers of chemicals, materials, and things used in the manufacture of artificial silk.

SUPER-DISINFECTANTS, LTD., 275, Finsbury Pavement, London, E.C.2. Registered February 9. Nom. capital, £2,500 in £1 shares. Chemists, research workers, manufacturers of and dealers in disinfectants, etc. Directors: C. L. Mendoza, R. C. Ellis.

Kaye's Rubber Latex Process, Ltd.: Annual Meeting

THE fifth annual general meeting of Kaye's Rubber Latex Process, Ltd., was held on Wednesday, February 8, at the Rubber Growers' Association under the presidency of Mr. A. F. Baillie. In moving the adoption of the report, Mr. Baillie said that the advent of Revertex had created fresh interest in the company's patents. It had been found in every way suitable for use in their process. Mr. F. Kaye had produced an artificial leather suitable for the covering of motor car bodies. A new patent had been granted for a method of producing vulcanised products where vegetable oils were used in conjunction with latex. They were in close communication with a German group who were experimenting with the process in paper mills in Germany, and a report might be expected at any moment. At home experiments were being made by a large firm. Negotiations were also going on in Finland and Italy. By June all negotiations would have been concluded. An interim report would then be issued. The report and accounts were unanimously adopted.

"Firth Stainless" Expansion

WE understand that the undertaking of Padley and Price, Ltd. (late of Sheffield), of Blackheath, near Birmingham, has been acquired by Thos. Firth and Sons, Ltd., the well-known steel manufacturers, whose name is so closely associated with the developments of "Firth Stainless" and other corrosion-resisting steels, and whose exhibits of "Firth Staybrite" Steel will form a prominent and interesting feature of the British Industries Fair. The undertaking will in future be carried on as Thos. Firth and Sons (Birmingham), Ltd.

Padley and Price's works have for the past three years been specially devoted to the manufacture of finished articles made from "Firth Staybrite" in the various forms that utilise its remarkable properties of great malleability, combined with "Super-stainless" qualities. As the policy of Thos. Firth and Sons, Ltd., as steel-makers, is to encourage the use of these new materials by existing producers of the various articles, their primary intention is now to develop the Birmingham works from the point of view of the supply of "Firth Staybrite" in the semi-manufactured condition, such as polished sheet and strip, welded and open-joint tubes, etc., and for demonstrating the facility for working the material, which is continually finding new and increased application for industrial and domestic purposes.

